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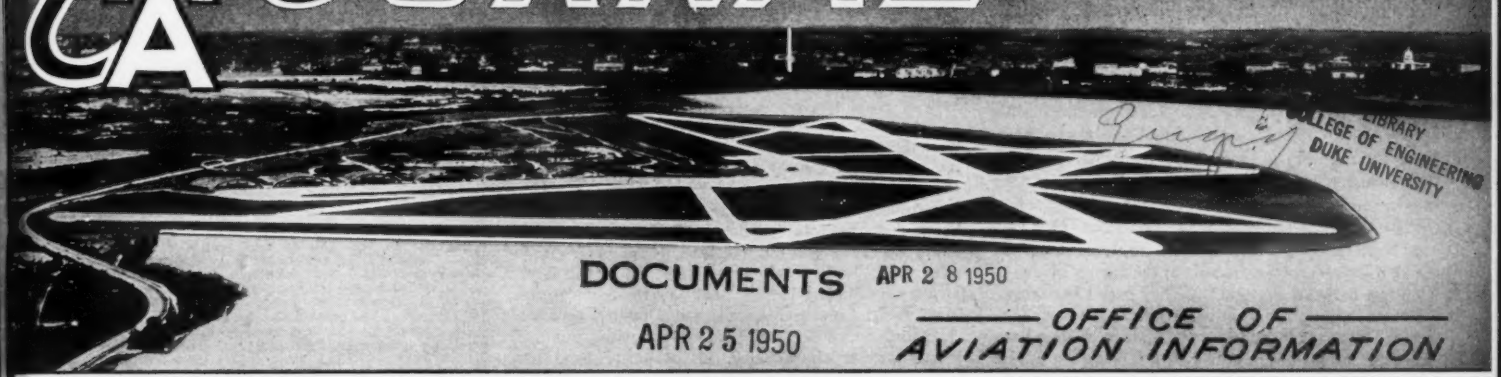

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Mandatory Flight Plans for All Areas Not Contemplated

Assurance to private pilots that no blanket mandatory flight plan policy covering the entire United States is contemplated by the Civil Aeronautics Administration was given by D. W. Rentzel, Administrator of Civil Aeronautics, to the Aviation Development Advisory Committee in session in Washington recently.

The Administrator explained in detail his policy of encouraging the filing of flight plans by civil airmen flying into two active defense areas now in being. He pointed out that these areas comprise only a minor portion of the area of the United States.

He explained that perimeter defense areas eventually will include the East Coast, the West Coast, the Canadian border, and three inland areas, namely the Oak Ridge, Hanford, and Los Alamos atomic energy plants.

Two Defense Areas Activated.—At present only two of these are activated, the area seaward of a line 20 miles off the East Coast from a point near Norfolk, Va., north to the border, and the Los Alamos atomic plant. Only in these areas are civil fliers now encouraged to file flight plans. As other areas are activated, by completion of the radar defense network, they will be included and flight plans will be encouraged over these areas when activated.

Purpose of the flight plans, Mr. Rentzel explained, is to provide identification information on all aircraft penetrating defense areas. Every latitude is allowed civil fliers consistent with the defense plans.

The East Coast area extends from a point near Norfolk, Va., to the Canadian border. Any aircraft flying seaward of a 20-mile off shore line in this area is encouraged to file a flight plan with the CAA. Flights inside the shore line, or along the shore, or within this 20-mile limit are not included.

Los Alamos Area Marked.—At Los Alamos, N. Mex., the designated prohibited area over the plant itself is still in effect. This is clearly marked on all aeronautical charts and has been in force for a long time. The new area lies within a radius of 150 nautical miles of the plant. Within that area, civil airmen flying above 10,000 feet mean sea level, or 4,000 feet above the immediate terrain, whichever is the higher, are encouraged to file a flight plan.

Similar areas will be established around the Oak Ridge and Hanford plants when defense provisions there are activated. It is expected that flight plans will be encouraged for all fliers crossing the Canadian border, and for all operating beyond the 20-mile limit along the West Coast from the Canadian border down to Punta Eugenia on the peninsula of Lower California.

"It is not true that we are contemplating mandatory filing of flight plans all over the United States," Mr. Rentzel said. "Even when all of the perimeter defense areas are activated the area affected will be a minor part of our total area. I know that our civil fliers are good citizens and that they will gladly cooperate in any matter such as this which directly concerns the defense of our country.

"Two points must not be forgotten in connection with flight plans. We can save lives of pilots if they will cooperate in this small matter, because a flight plan always makes easier and more certain the search for and rescue of someone forced down on a cross country flight in difficult terrain. All careful pilots agree on the wisdom of this practice. The other point

(*Continued on page 43*)

Manual on Air Traffic Control Out in Revised Edition

A newly revised edition of a manual on air traffic control procedures, applying alike to Air Force, Navy, and civil air traffic, is now available from the United States Government Printing Office, Washington 25, D. C., for 40 cents.

The "ANC Procedures for the Control of Air Traffic" includes all changes previously made in air traffic procedures, as well as those which will become effective on or before March 15, 1950.

The 92-page publication details general rules of procedure, as well as procedures for controlling instrument flight rule traffic, airport traffic control, approach control, and alerting search and rescue facilities.

Contract Awarded For 450 Stations In DME Program

The largest contract in the history of the Civil Aeronautics Administration has been awarded for purchase of 450 distance measuring equipment ground stations, according to Charles F. Horne, acting director of the Office of Federal Airways.

The equipment, known in aviation circles as "DME," will use radar-type radio pulse transmissions to inform pilots continuously of their distance from a radio range. The DME transponders are part of a revolutionary new air navigation system being installed for common civil and nontactical use under a program developed by the Radio Technical Commission for Aeronautics, and approved by Congress and all major airway users.

The contract for manufacture of the DME ground equipment went to the Hazeltine Electronics Corp. of Little Neck, L. I., which offered the lowest of four bids. The Hazeltine contract totaled $4,210,750 including spare parts. The company, which has done extensive research in the field, was a major supplier of electronics equipment for the military forces during the war.

Under terms of the contract, the first DME transponder will be delivered to the CAA for testing and evaluation by November 1950. Five additional transponders will be delivered in March of 1951, with production reaching 40 units per month by June 1951.

Developed During War.—The DME equipment is one of the electronic miracles born during the last war. It is a much-improved and modified version of the radar beacons, known as "racons," which saw extensive service during the war, employing similar pulse techniques. Like other parts of the new civil-military air navigation system, it operates in that part of the radio spectrum which is free from static and similar types of interference. The frequencies used by DME are in the vicinity of 1000 megacycles—above even the very high frequencies of television, FM radio, and the new omnidirectional radio ranges where the DME transponders will be located.

More than 300 omnidirectional, or omniranges, already are operating in the United States to give pilots exact information concerning the flight paths they

(*Continued on page 39*)

Problems of Air Transportation Discussed by Board in Statement

The Civil Aeronautics Board on March 16 submitted a statement to the Transportation Subcommittee of the House Interstate and Foreign Commerce Committee to supplement the summary remarks of Joseph J. O'Connell, Jr., Chairman of the Board, on February 27.

"The problems facing air transportation are interrelated," the statement said. "What appears, for example, to be a question involving the route pattern may quickly involve mail rates and commercial rates. It is therefore impossible to say that there are a certain number of major problems and that they fall into convenient watertight compartments, a solution of any one of which can be achieved by itself."

"Undoubtedly the bulk of the problems which confront the industry and the Board involve, in one way or another, the route pattern and the competitive relationship between carriers," the statement continued. "Routes have always been one of the major items with which the Board has dealt, and although the emphasis in route problems is now changing from one of expansion of the system to one of modification, there can be no doubt that the Board policy on competition and on the route pattern will continue to present the most important group of questions."

Domestic Routes Discussed.—After a discussion of domestic routes, the statement continued: "It may be said that, with some exceptions, the present domestic route pattern is now reasonably complete and basically sound. The problems which will arise in the future deal primarily with the rearrangement of existing routes, the lessening of hurtful competition and possibly the corporate regrouping of certain of the carriers in order to reduce the mail pay requirements of these carriers and to provide more equally balanced competition in terms of size and economic power.

"A question closely related to the rearrangement of routes or possible rearrangements of corporate groupings, is the question of how best to supply the smaller communities of the country with air service. In the postwar period there have been certificated on an experimental basis 24 'feeder' or 'local service' lines which link together groups of small communities with their principal trade and transportation centers. It was believed that, through more intensive effort at the grass roots and through a keener understanding of local requirements, these small companies, which are usually locally controlled, could develop local air service more satisfactorily and more quickly than the trunk line carriers, whose principal interest is centered in the development of long haul, high speed air transportation service. There is considerable evidence that this policy is sound."

Service for Smaller Communities.—"Fundamentally there are two ways in which air service can be supplied to these smaller communities which, at least initially, are not commercially profitable. The service may either be subsidized by the long haul, profitable traffic or it may be subsidized by the Government. There are few who would dispute that air transportation should be expanded as rapidly as is reasonably feasible to the medium-sized communities. But there is a serious question whether service to points which cannot at the outset meet the cost of such service should be permitted to slow down the development of long-haul air transportation by making such traffic carry the loss entailed in serving the smaller and nonprofitable communities. The Board has no desire to see grow up in air transportation a situation which now appears to exist in certain forms of surface transportation, where general rate levels are kept high because of the necessity of conducting uneconomical operations. The problem confronting aviation is the reverse, of course, of the problem in surface transportation in that these uneconomical points served are not yet fully developed whereas in surface transportation the uneconomical operations are typically services which no longer have an economic justification."

Problem Being Dealt With.—"The problem is being dealt with in conjunction with certificate renewal proceedings of a number of the feeder carriers, which have come to the end of their initial 3-year experimental period. In the Pioneer, Southwest, West Coast, Challenger, and Monarch renewal cases the Board has made various proposals for the rearrangement of the local service pattern and for the elimination wherever practicable of the small amount of competition between the trunk carriers and the feeder, usually through the removal of the trunk carrier from smaller points served by both carriers, leaving the feeder carrier to provide the service. These cases are now in various stages of completion. It is impossible to predict whether the proposals made by the Board will become final."

Later, at the outset of a discussion of commercial rates and fares, the statement declared: "Undoubtedly the only major factor which has prevented a still faster growth of air transportation is its high cost."

"Over the last 18 months the industry and the Board have embarked on a series of experiments in the passenger field to test the value of various fares in attracting traffic to the airlines over light traffic routes at off-peak periods.

"The so-called family fare plan, various individual excursion fares, group fares, and educational fares which are now in effect on some or all airlines are examples of these promotional fares," the statement continued.

Promotional Fares Experimental.—"The Board permitted these fares to become effective for limited periods of time and most of them expire on June 30, 1950. The Board is receiving special reports on these tariffs and is studying the effects of these fares upon the revenues of the carriers. Prior to the expiration date the Board will announce whether it is willing to see an extension of these promotional fares. It appears that there may be at present too great a variety of such special promotional fares. Although the proliferation of these fares may have been justified during an experimental period, it is probable that in the near future the number of types of promotional fares should be reduced and standardization should be achieved on a few of the most effective of these devices.

"Another experiment in reduced passenger fares has been the introduction by the certificated carriers of coach service utilizing high-density equipment, operating between heavy traffic points and typically operating at off-peak periods of the day. The coach services in general appear to have increased the overall net revenues of the carriers. Load factors and seating density have been high and although there has been some diversion of traffic from regular service, it appears that the portion of total coach traffic which has been diverted from first class service has been limited to no more than 20–30 percent.

"For the immediate future the Board intends to continue these fare experiments, following their results carefully to determine the effect of individual types of tariffs on the carriers' traffic and costs. In view of the fact that the Government, in effect, meets the losses of the carriers, under honest, economical, and efficient management, it is highly important both to the industry and the Government that a reasonable fare level be maintained until reductions in that level can be made without resort to increased Government assistance. In short, we believe that as a general proposition further increases in trunk line air travel should be paid for exclusively by the air passenger rather than out of the public treasury."

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CAA JOURNAL

DEPARTMENT OF COMMERCE
Charles Sawyer, *Secretary*

Civil Aeronautics Administration
D. W. Rentzel, *Administrator*

Ben Stern, *Director*
Office of Aviation Information

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CAA and CAB Releases

Copies of CAA releases may be obtained from the CAA Office of Aviation Information. CAB releases are obtainable from the Public Information Section of the Board.

Administration

Michigan Active in Enforcing Civil Air Regulations—(March 6).

New Civil Military Air Traffic Manual Announced by CAA—(March 7).

Agreement Reached on Royalty Fee for High Intensity Runway Lights—(March 7).

Airplanes Sell Best in Western States, CAA Reports—(March 9).

CAA Lets Biggest Contract for New Air Navigation Aids—(March 9).

Address by Philip A. Hahn, Chief, Airport Engineering Division, Office of Airports, entitled "Status of the Federal-Aid Airport Program," given before the Joint Operative Committee, National Association of State Aviation Officials and the Associated General Contractors of America, San Francisco, Calif.—(March 1).

Address by D. W. Rentzel, Administrator of Civil Aeronautics, entitled "Road Builders Role in Developing and Perpetuating Airports," given before the American Road Builders' Association, Cincinnati, Ohio—(March 9).

Board

Board Issues Report on "The Human Equation in Aircraft Accidents"—(CAB 50–16) March 2, 1950.

Board Disposes of Exceptions in Hawaiian Common Fare Case—(CAB 50–17) March 7, 1950.

Mileage & Traffic Year End Figures for 1949—(CAB 50–18) March 13, 1950.

Trans-Canada Airlines Granted Air Route From Montreal and Toronto to Florida and Carribbean Points—(CAB 50–19) March 14, 1950.

Public Hearing Set for Northwest Airlines Accident at Minneapolis, Minn.—(CAB 50–20) March 15, 1950.

Civil Aviation Highlights

	1950	1949
Airports recorded with CAA, *March 1*	6,476	6,416
By type: [1]		
Commercial	2,555	2,922
Municipal	2,204	2,080
CAA intermediate	136	160
Military	347	395
All others	1,234	859
Civil airports by class:		
Total	6,129	6,021
Class I and under	4,051	4,000
Class II	989	985
Class III	500	471
Class IV	375	359
Class V	136	132
Class VI and over	78	74
Total U. S. civil aircraft, *March 1*	92,599	94,883
Scheduled air carrier aircraft, *March 1*	1,154	1,056
Civil aircraft production, *January*		
Total	167	160
1- and 2-place models	45	37
3-, 4- and 5-place models	112	114
Over 5-place models	10	9
Certificates approved, *January*		
Student pilots	2,995	2,629
Private pilots	1,693	2,136
Commercial pilots	401	526
Airline transport pilots	79	66
Mechanics (original certificates)	435	537
Ground instructors (original certificates)	149	170
Flight instructor ratings	102	111
Instrument ratings	94	109
Control tower operators	105	160
Traffic control activity, *January*		
Aircraft operations, CAA airport towers	1,009,828	1,063,275
Fix postings, CAA airway centers	998,516	887,463
Instrument approaches, CAA approach control towers	31,989	26,101
Airport Operations		
Washington National, *February*		
Scheduled air carrier:		
Passengers departing	44,307	41,930
Passengers arriving	42,653	39,923
Aircraft arrivals and departures	7,660	9,606
Other aircraft arrivals and departures	1,817	4,556
San Francisco Municipal, *January*		
Scheduled air carrier:		
Passengers departing	33,376	31,667
Passengers arriving	35,380	33,590
Aircraft arrivals and departures	6,676	5,582
Other aircraft arrivals and departures	2,891	3,620
Oakland Municipal, *January*		
Scheduled air carrier:		
Passengers departing	3,129	4,197
Passengers arriving	2,846	3,777
Aircraft arrivals and departures	4,473	4,016
Other aircraft arrivals and departures	10,434	16,475
Miami International, *January*		
Scheduled air carrier:		
Passengers departing	60,994	48,847
Passengers arriving	58,083	47,469
Aircraft arrivals and departures	8,640	8,436
Other aircraft arrivals and departures	10,044	13,101
Los Angeles International, *January*		
Scheduled air carrier:		
Passengers departing	42,366	43,847
Passengers arriving	40,243	41,172
Aircraft arrivals and departures	8,127	7,494
Other aircraft arrivals and departures	5,264	5,701

[1] Airport type definitions: Commercial—Public use and public services, privately owned and operated. Municipal—Public use and public services, municipally owned and/or operated. CAA Intermediate—Public emergency use, no services, CAA operated. Military—Public restricted, military operated. All others—(a) Public emergency use only, no public services, privately owned for personal use; (b) Public emergency use only, no public services, Government-owned Forest Service, etc.

Operation of Private Plane Discussed in CAA Booklet

"Facts of Flight" is the title of a Civil Aeronautics Administration publication which gives practical information about operation of private aircraft. The 41-page booklet, illustrated in color, and written in nontechnical language, has chapters on airplane flight, stalls, spins, airplane structure, airplane engines, flying the plane, airport traffic, seaplanes, and safety in flight.

The publication is on sale at 50 cents a copy by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

CAA Awards Contract For 450 DME Stations

(Continued from page 37)

wish to follow. The DME transponders, located at omnirange sites, will give pilots the second vital piece of information needed—continuous data on how far the plane has progressed along the flight path. The information will appear on a simple cockpit dial, like an automobile mileage meter, showing continuously how far the plane has progressed along its flight path toward the omnirange.

Radio pulses travel at approximately 186,000 miles per second. Even at this bewildering speed, however, a certain measurable amount of time is required for a radio pulse to travel a mile, 10 miles, or 100 miles. Distance measuring equipment measures such time intervals in millionths of a second, and translates these tiny slices of time into distance in miles.

To Develop Lighter Units.—The necessary equipment in the aircraft includes a special transmitter and receiver weighing about 50 pounds. Lighter units are under development. This air-borne transmitter sends out coded pulses of radio energy. The ground DME transponder receives these pulses, and then hurls back another set of radio pulses to the aircraft. The time required for this "round trip" is measured by the receiver in the aircraft, and the information presented to the pilot in terms of miles. An average of 30 such "round trips" between aircraft and DME ground transponder occur each second.

The range of the DME equipment depends in part on the altitude of the aircraft, and the power and sensitivity of the air-borne equipment. Its normal range, however, is about 40 miles at 1,000 feet, and up to about 200 miles at very high altitudes.

To avoid confusion between responses by the ground station to various aircraft in the vicinity, a series of "paired" frequencies are used for the transmission of "interrogation" and "reply" pulses. Each DME ground transponder can serve up to 50 aircraft simultaneously. When increased traffic makes additional capacity desirable, it can be provided by modifying the ground equipment.

Twin Units Available.—The detailed specifications under which the DME ground transponders will be built call for unusually high-quality components and workmanship. However, each ground station purchased under the present contract consists of two transponders, with one used as a "stand-by." In case of any malfunctioning of the transponder in operation, its twin unit is switched in automatically, and service to aircraft continues uninterrupted. Even if commercial power should fail, a stand-by generator automatically will start operation to provide the two kilowatts necessary for running the transponder.

Since omniranges already are operating near most cities in the United States, many persons are familiar with the top-hat-shaped structures housed atop 15-foot towers. The DME ground transponders will be housed in the bases of these omniranges. The only external evidence of the DME equipment will be the DME antenna, mounted at the highest point of the omnirange structure. The DME antenna will look like a 5-foot vertical stovepipe with a rounded lid. The "stovepipe," however, will be merely a cover, transparent to radio impulses, which will protect the delicate antenna structure within.

December Mileage Report Given

The 16 domestic trunk airlines flew 93.23 percent of their scheduled mileage in December 1949, the Civil Aeronautics Board reports. Of the 38.04 average available seats per mile, 50.21 percent were occupied by revenue passengers in December 1949, as compared with 34.99 average available seats, of which 55.15 percent were occupied by revenue passengers for December 1948.

Aeronautical Industry Reports Gain in Sales

The aeronautical industry's sales for the fourth quarter of 1949 totaled $512 million, an increase of $53 million over the previous quarter and $79 million more than in the fourth quarter of 1948, according to a report issued jointly by the Civil Aeronautics Administration and the Bureau of the Census. Sales for 1949 came to $1,782 million, more than $300 million greater than the 1948 output. Military sales accounted for 81 percent of the 1949 total, civil sales 13 percent, and other products and services 6 percent.

The backlog for aircraft, engine and propeller companies stood at $3,010 million on December 31, 1949, only slightly below the $3,105 million figure of a year ago. The total backlog was distributed as follows: complete aircraft and parts $2,015 million or 67 percent; $749 million or 25 percent was for aircraft engines and parts; $91 million or 3 percent was aircraft propellers and parts; and $155 million or 5 percent was other products and services.

A summary of the sales, backlog and new order figures for the fourth quarter of 1949 shows:

Civil Aircraft Engine Shipments

	January 1950	December 1949	January 1949
Number (total)	267	168	264
Horsepower output (thousand horsepower)	140.4	123.4	111.9
Value (thousand dollars)	$5,312	$4,546	$3,235
Complete engines	1,803	1,662	1,351
Parts	3,297	2,533	1,733
Other products	212	351	151

Trend to Heavier Aircraft Shown in January Shipments

The civil aircraft industry began 1950 with shipments totaling 167 aircraft, weighing 507,800 airframe pounds and valued at $16,356,000, according to a report issued jointly by the Civil Aeronautics Administration and the Bureau of the Census.

January shipments were only slightly higher than last year in number (167 compared with 160), but represented substantial gains in both airframe weight, up 81 percent, and dollar value, up 96 percent. The increase was due to larger shipments of heavier, more expensive airline transport planes.

Comparative figures for January 1950, December 1949, and January 1949 follows:

Backlog, Sales, and Net New Orders for Quarter Ending December 31, 1950

[In millions of dollars]

	Backlog beginning of quarter	Net new orders during quarter[1]	Net sales during quarter	Backlog at end of quarter
Total	$2,858	$664	$512	$3,010
Complete Aircraft and parts:				
U. S. Military	1,726	456	265	1,917
Other	126	26	54	98
Aircraft engines and parts:				
U. S. Military	694	152	136	710
Other	40	11	12	39
Aircraft propellers and parts:				
U. S. Military	93	5	13	85
Other	6	3	3	6
Other products and services	173	11	29	155

[1] Net orders received during quarter less cancellations. Cancellations not shown separately to avoid disclosing figures for individual companies.

Outlook for Domestic Airlines Good During Present Year, Committee Told

The outlook for domestic airline operations in 1950 seems to promise a moderate increase over last year but a further decline in private flying activity is likely, D. W. Rentzel, Administrator of Civil Aeronautics, told the House Interstate and Foreign Commerce Committee recently. Passenger-miles flown in 1949 by domestic air carriers were 13 percent above 1948 and the number of passengers up 15 percent, while other forms of commercial passenger travel declined, Mr. Rentzel told the committee. Air freight registered the largest proportionate increase of any major traffic category, with volume expanding from 71 million ton-miles in 1948 to 95 million in 1949, a gain of 34 percent. Air express declined 8 percent during this period, probably due to diversion to air parcel post and air freight.

"Paralleling the advance made by domestic airlines, United States scheduled international air carriers enjoyed record traffic in 1949," the Administrator continued. "Revenue passengers totaled more than 1,500,000, a 9 percent increase over the previous high established in 1948. Passenger miles in excess of 2,000,000,000 were reported, an 11 percent increase over 1948."

Air Express Record Set.—"International air express came to a record volume of almost 50,000,000 ton-miles, with air freight also registering substantial gains, along with United States air mail and parcel post.

"There were no fatalities in international scheduled air carrier operations in 1949, a record which has been matched in only 2 previous years, 1940 and 1942. These were periods when passenger traffic carried amounted to only a fraction of last year's volume.

"The outlook for domestic airline operations in 1950 seems to call for a moderate increase over 1949. Increased dependability and safety as a result of the program to modernize the Federal airways system, a broadening of the air-coach market, and improvement of the airline competitive position with respect to surface carriers, are all factors in this anticipated expansion. While much depends on general business conditions, and forecasts necessarily are uncertain, an increase of about 6 percent seems likely in 1950 for passenger traffic, together with a 15 percent growth in air freight and air express."

Increased trans-Atlantic traffic, the Administrator said, "can be anticipated with confidence." Caribbean and Latin American business may show some slight gains, he added, but the prospects in the Pacific "appear pessimistic."

Data on Irregulars Given.—On the basis of incomplete data for 1949, it appears that 49 large irregular domestic air carriers carried about 125,000 passengers and flew approximately 300,000,000 passenger-miles, Mr. Rentzel said. "This is less than 5 percent of the passenger-miles flown by the domestic scheduled airlines," he added, "and less than 1 percent of the number of passengers carried by domestic lines. Irregular carriers hauled about 6 percent as much freight during 1949 as did the domestic scheduled carriers."

Future prospects for irregular carriers are not optimistic, the Administrator told the committee. "Limited financial resources have made operations difficult," he pointed out, "and competition from certificated airlines has diverted much of the air freight traffic developed originally by the irregulars. With the scheduled air carriers actively developing air-coach traffic, substantial diversion in this traffic from the irregulars can be expected. Good-quality war surplus aircraft at bargain prices now are difficult to obtain, and the original equipment is wearing out."

At the same time, the Administrator added, the scheduled airlines are offering coach services in modern aircraft which offer fast transportation at low operating costs. Another factor, he said, is the difficulty the nonscheduled carriers face in maintaining traffic while operating on an irregular basis.

Business Flying Gains.—During 1948, the last year for which complete figures are available, 15,000,000 hours were flown by private and nonscheduled commercial aircraft, the Administrator said. This represented a decrease of 7 percent from 1947. "In 1948," he continued, "as in previous years, private flying was dependent upon flight training for the major part of its activity. Flying for personal purposes or for pleasure represented only 16 percent of total activity in 1948. Business flying, which is made up of flying by corporations, executives, and individuals on personal business, moved up sharply between 1947 and 1948, but it was the only bright spot in the private aviation picture. This type of flying in 1948 was slightly greater than pleasure flying, but the increase in business flying was insufficient to offset the decline in other types of private flying, particularly flight training.

"Although 1949 figures are as yet not available, they are expected to show a further decline from the 1948 levels," he added.

"While business flyers are probably the main outlet for personal aircraft," the Administrator continued, "it is questionable whether they will be able to maintain the private flying industry even at its present depressed levels."

Safety Record Improves.—The private aviation safety record, although still relatively poor in comparison with other types of flying, shows considerable improvement, the Administrator said. "Fatal accidents per 100,000 hours declined from 7.1 in 1946 to 5.6 in 1948, with nonfatal accidents showing a somewhat greater decline," he said. "Increased use of the small plane stall-warning indicator, developed by the CAA, is expected to reduce the large number of accidents involving stalls and spins at low altitudes."

The combined airframe weight of civil and military aircraft produced in 1949 was nearly 40,000,000 pounds, the largest amount delivered by the aircraft industry since 1946, Mr. Rentzel said. "However," he added, "these combined figures obscure the sharp contrast between postwar military and civil output. Military acceptances, after falling to their postwar low in 1947, have been rising steadily, and in 1949 accounted for 81 percent of total airframe weight delivered. Civil aircraft production, in contrast, had its best year in 1946, and has declined precipitously since then.

"Personal plane shipments were down sharply as a result of the decline in private flying activity. By the close of 1949, less than 200 personal planes a month were coming off the industry's assembly lines. Personal plane production has declined steadily from 34,500 in 1946 to 3,300 in 1949."

Shipments Expected to Decline.—The 1950 outlook for manufacturers of civil aircraft is not particularly promising, with shipments of transports and personal aircraft expected to decline further from the already low levels of 1949, the Administrator said.

"No phase of aviation has proved more disappointing to everyone concerned, in and out of Government, than the poor showing of private flying since the war," Mr. Rentzel told the committee. "Personal flying has the potential, to all appearances, of becoming a major industry like that of the automobile. Yet since the war, with one-half million trained pilots and general prosperity, it has spiraled downward until only 3,400 private planes were manufactured in 1949."

A contract has been placed with the Texas A. and M. College system for the development of a plane specially designed for dusting and spraying operations, and perhaps also with general utility for farm use, he said.

"But something more than this must be done to reverse the downward trend of small-plane operations," he continued. "Although the United States-produced light planes are among the world's finest, the present types of small planes are not useful enough to justify their comparatively high cost of operation. We need an airplane which will be more useful to more people. A very general specification for such a plane would be one that could fly safely as slow as 20 miles an hour, yet have a top speed of at least 100 miles an hour.

Simple Construction Necessary.—"It should be able to operate safely from a 2-acre field. It may be desirable for it to be roadable. Certainly, it should be of simple construction, with low maintenance costs. Until such a plane is available, it is difficult to forsee the development of a substantial small-plane industry in the United States. Such a development will not come overnight and it may require some Governmental assistance in cooperation with industry."

There is widespread support for a plan for the Government to provide funds for two types of testing of new transport aircraft, including jet-powered transports and low-operating-cost cargo transports, Mr. Rentzel said. "Under such a plan," he continued, "testing for type certification, service testing, and certain modifications during testing would be done at Government expense to help stimulate development of new transport planes.

"It appears obvious that some type of Government assistance is necessary if the United States is to maintain its lead in transport aircraft design. The cost of design and development of increasingly complex modern transports has become so heavy that manufacturers are reluctant to make the investment in the face of doubtful financial returns.

"The need for constantly improving transport aircraft is a military as well as civil problem. As World War II demonstrated, the equipment and personnel of the airlines and of the military air transport service can be used interchangeably to support the war effort. Our airline equipment is thus part of our pool of military reserve and this part of our military reserve is largely self-supporting."

Transport-type civil planes immediately available to the military in an emergency now number less than 1,300, including those now in use by both scheduled and irregular carrier, Mr. Rentzel said.

Network of Airports Needed.—The Administrator outlined the need for a network of modern airports throughout the country, which he said is as urgent as the development of air navigation facilities for military and civil flying.

"The Federal-aid airport program went into operation in fiscal 1947," he pointed out, "and work has progressed at an accelerating pace since that time. The first year of the program was devoted largely to construction and development of small airports, because of the time necessary to get more complex projects under way. Since then, emphasis has been placed on large, transport-type airports because of the urgent need and because of national defense consideration.

"Total appropriations in cash and contractual authority since 1947 have been 157 million dollars. As of February 1, 1950, more than 141 million of this sum had been allocated to 1,180 projects at 1,157 locations.

"The program now is rolling along in high gear, with 1,066 projects either completed or under construction," he added.

Runway Was Wet.—The pilot's action in landing too fast and too far down the wet runway following a high approach was given by the Civil Aeronautics Board as the probable cause of an accident at Burlington Airport, Burlington, Vt., September 20, 1948, when a Colonial Airlines plane crashed into trees adjacent to the airport. The aircraft received major damage. Of the 14 passengers and 3 crew members, 1 passenger and the stewardess were slightly injured.

The flight was scheduled between Montreal and New York, with an intermediate stop at Burlington. At the time the weather at Burlington was: ceiling 1,000 feet, visibility 2 miles, light rain. The runway surface was wet with standing water.

Tower personnel observed the flight on final approach for a north landing when it was south of the field. The airplane was beneath the overcast and remained visible to ground observers while making a sharp descent toward the field. Because of an air speed which was higher than normal, the plane remained airborne for several hundred feet.

The plane touched down 1,875 feet from the approach end of the 3,600-foot runway, and in a tail-high attitude. There was no apparent deceleration and as it continued toward the far end of the runway, power was applied in an attempt to take off. The airplane became airborne but there was not sufficient distance remaining and it crashed into trees just north of the airport. Power to both engines was reduced just prior to impact. All the passengers were evacuated without difficulty.

The Board said the captain knew that the runway was wet and "he, therefore, should have used more than the usual care in landing; had he done so the aircraft could have been brought to a stop by the use of brakes within the limits of the runway despite the existing landing conditions."

Propeller Blade Failed.—Failure of a propeller blade due to high stresses induced by accumulative engine malfunctioning was given by the Civil Aeronautics Board as the probable cause of an accident which forced an Eastern Air Lines flight to make an emergency landing at Bunnell, Fla., February 7, 1948.

A portion of the propeller pierced the fuselage, fatally injuring a crewman, and forced the plane to make an emergency landing. Several passengers were slightly injured in the landing.

The flight originated at Boston, made a scheduled stop at La Guardia Field, and was enroute to West Palm Beach, Fla. Some 3 hours after taking off from La Guardia, while the aircraft was offshore about 155 miles east-southeast of Brunswick, Ga., the No. 3 propeller failed and a portion of one blade was thrown through the fuselage. It entered the lower right side at the galley section, severing control cables, electrical wires, and engine controls, came up through the floor, fatally injuring Purser G. P. Folz, and left through the upper left side.

A momentary fogging in the cockpit resulted, due to the sudden depressurization of the fuselage from its former 9,800-foot equivalent. Heavy vibration was felt, and all of the flight and engine instruments became either inoperative or impossible to read.

Power was reduced, and a rapid descent was started. An attempt was made to feather No. 3 engine, and orders were given to prepare for ditching.[1]

A minute or two later the front portion of No. 3 engine and some of its cowling fell free of the aircraft. The heavy vibration stopped. A fire followed in No. 3 nacelle but quickly extinguished itself.

At the 12,000-foot level the descent was stopped. The crew then found that controlled power was available from engines Nos. 1 and 2, that No. 4 engine was running, although it could not be controlled by its throttle, and that No. 3 engine had stopped. A strong yawing tendency to the left was found to be controllable. Accordingly, the course for shore was held.

Near the coast low clouds prevailed, and the aircraft was let down visually to about 1,000 feet altitude, as most of the flight instruments remained inopertaive. Weather prevented a landing at Daytona Beach, and the aircraft was flown up the coast to Bunnell, where the mergency landing was made.

The Board found that frequent and accumulative malfunctioning of No. 3 engine caused dangerously high stresses in the propeller blade.

"The evidence is clear that the failure of the propeller of No. 3 engine cannot be attributed to any act or omission on the part of the crew in operation of the aircraft," the Board said. "The flight crew is to be commended for the high type of professional airmanship they displayed in safely landing the badly damaged aircraft under conditions of extreme emergency."

The crew was made up of W. E. Johnson, captain; H. T. Merrill, check pilot; R. G. Burstrom, pilot; N. H. Turner, flight engineer; W. J. Hoy, flight attendant; and G. P. Folz, flight attendant.

Right Engine Lost Power.—Loss of power, possibly caused by improper spark plugs, and overloading were given by the CAB as probable causes of an accident near San Juan, Puerto Rico, June 7, 1949, in which 53 persons lost their lives.

The plane, owned and operated by Strato-Freight, Inc., took off from Isla Grande Airport, San Juan, with 75 passengers and a crew of 6, for a return trip to Newark, N. J. One minute following take-off the right engine began to backfire and lose power. The aircraft failed to maintain altitude and crash-landed in the sea, 6.4 miles west of the airport. At take-off, the Board said, the aircraft was overloaded 3,709 pounds.

The Board said that 30 of the 36 spark plugs installed in the right engine were not approved by the manufacturer of the spark plug, by the manufacturer of the engines, or by the United States Air Force. Investigators reported that the magneto switch for the right engine was found set to the "left" position, which fires the rear spark plugs only, and all of the rear row of spark plugs in the right engine showed evidence of excessive heat.

The Board determined that the probable cause of the accident was "the loss of power of the right engine before the aircraft attained the optimum single engine climb speed which, together with the overloaded condition of the aircraft, resulted in it losing altitude and settling into the sea."

Missing Plane Not Found.—Evidence is insufficient to make any determination of the probable cause of the loss of an airplane owned and operated by Pacific Alaska Air Express, reported missing between Yakutat, Alaska, and Seattle, Wash., since the morning of November 4, 1948, the Board has found. The 15 passengers and 2 crew members are presumed lost.

An hour after taking off from Yakutat, the flight made a position report which was received by Gustavus Radio. This was the last communication received from the plane.

Extensive searches of the Sitka and Yakutat areas were made without success. The Board said that, weather permitting, the search for the airplane and its occupants will be intensified again in the spring of 1950.

The Board found that the plane was in satisfactory operating condition when it departed Yakutat, that the flight was routine to the time of its last position report, and that weather data available indicates that atmospheric conditions at the cruising altitude of 10,000 feet were not conducive to airplane icing or carburetor icing.

Planes Collide in Flight.—A Michigan state Air National Guard plane collided with a personal plane near Wyandotte, Mich., September 10, 1949, at an altitude of 2,500 feet in an accident which the CAB said probably was caused by lack of vigilance on the part of the crew of the military aircraft. Although both planes were damaged, no one was injured.

Following the collision, the personal plane circled and landed in an open field. The National Guard plane returned to its base, where a normal landing was made.

Lacy Nevills, pilot and sole occupant of the personal plane, was flying cross-country from Detroit to Marion, Ohio.

Shortly before the accident, the two planes were observed in the vicinity of Hance Airport. They appeared to be in level flight, flying in the same direction at the same altitude, with the military plane directly behind the personal plane and overtaking it rapidly. No change in course or altitude of either aircraft was observed until a collision appeared inevitable. Then the military plane was seen to dive under the other aircraft in an effort to avoid it. However, the military plane did not entirely clear the other aircraft and parts from the personal plane were observed falling to the ground.

The pilot of the military plane stated that he and the flight engineer, only occupants of the plane, had been on the lookout for other aircraft except for short intervals when they checked their instruments. Shortly before the collision, they had concentrated their attention on the engine instruments. When they next looked up, they were rapidly overtaking the personal plane.

The Board cited CAR 60.14 (d), which states that an aircraft which is being overtaken by another aircraft has the right-of-way.

Ice Restricted Visibility.—An attempt to continue an approach for a landing using both GCA and visual reference to the ground under conditions of restricted visibility was given as the probable cause of an accident March 2, 1949, at Gander, Newfoundland, when a TWA plane struck a power line and made contact with the ground in an approach for a night landing during bad weather. Although severely damaged, the aircraft became airborne and was landed at Gander airport without injury to the passengers or crew.

During the descent through the overcast, considerable ice accumulated on both windshields, restricting the cockpit visibility of the crew, the Board said, and the captain turned on the windshield deicer. Shortly thereafter, however, the deicer had to be turned off because the windshield rubber seal and sealing compound had deteriorated, permitting alcohol fumes to enter the cockpit, creating a fire hazard. A company restriction prohibited use of the clear view windows, the Board said. This was to prevent exhaust fumes from entering the cockpit and cabin.

Once he had established visual contact and was beneath the overcast, the captain did not look at the altimeter but relied entirely upon visual reference to the ground and upon GCA instructions for changes in altitude, the Board said. "GCA is an aid to landing during marginal weather," the Board added. "Its function is supervisory only and its responsibility ceases once the flight has established visual contact with the ground. However, as in this case, the aircraft's position sometimes continues to be given to the pilot."

"The captain's attention was divided when he employed two flight methods, i. e., by visual reference to the ground and by instructions from GCA during the approach," the Board's report continued.

[1] A premeditated landing of a land aircraft at sea.

Official Actions . . . . . Civil Aeronautics Board

Regulations

SR-342 ..... Effective March 6, 1950

Extends to April 7, 1950, the date of compliance with identification data requirements set forth in amendments 2-1, 3-1, 4a-3, 4b-1, 6-3, 13-1, 14-1, and 15-1.

PR-6 ..... Effective March 8, 1950

Amends Part 302 of the procedural regulations concerning representation by persons formerly associated with the Board.

Safety Orders

S-312 suspends for 15 days pilot certificate of Peter L. Baitty. The Board found that a flight directly over a farmstead at a low altitude constitutes a careless operaion of aircraft so as to endanger the life and property of others and was an unnecessary action (Feb. 16).

S-313 grants request of Czeslaw Adam Przedpelski for waiver of the provisions of §§ 20.3 and 20.21 of the Civil Air Regulations so as to authorize the issuance of a private pilot certificate while he is presently stateless (Feb. 17).

S-314 terminates proceedings in the matter of the issuance of a pilot certificate to John D. Lindsay (Feb. 20).

S-315 suspends, for 3 months, pilot certificate of Frank W. Andrew for operating an aircraft which was not in an airworthy condition, when the registration certificate was not in the aircraft, when the aircraft had not been given an annual inspection within the preceding 12 months, and when the pilot did not have a current medical certificate in his possession (Feb. 20).

S-316 grants request of Ludwig Carl Vogel for waiver of the provisions of §§ 20.3 and 20.21 of the Civil Air Regulations, so as to authorize the issuance of a private pilot certificate while he is still technically a citizen of Germany (Mar. 8).

S-317 grants United Air Lines exemption from the provisions of § 43.30 (b) (2) of the Civil Air Regulations, so as to permit the carrier to experiment for 6 months with the use of amber lenses in rear position lights instead of the currently required red lights (Mar. 10).

S-318 grants Roy Patton waiver of §§ 9.3 and 43.10 (c) (5) of the Civil Air Regulations, so as to permit him to operate a Sikorsky R-6A helicopter for the purpose of crop dusting, seeding, pest abatement, and other similar operations (Mar. 10).

Airline Orders

E-3790 orders Arctic-Pacific, Inc., to show cause why its letter of registration No. 978 should not be revoked for knowing and willful violations of the Act (Jan. 12).

E-3791 orders an investigation of, and suspends for 90 days, certain fares, rules, and regulations proposed by United Air Lines (Jan. 12).

E-3792 amends orders serial Nos. E-3158 and E-3251 so as to correct the base mileages erroneously shown in original orders (Jan. 12).

E-3793 denies motion of Mount McKinley Airways, requesting deferment of further procedural steps in the matter of the suspension and revocation of its letter of registration No. 737 (Jan. 13).

E-3794 orders an investigation in the matter of certain tariff practices of Northwest, and the noncertificated operations of Fly Freight and Sterling Freightways (Jan. 13).

E-3795 authorizes All American to suspend service at Warren, Pa., on route No. 97, for 1 year, or until adequate airport facilities are available at Warren (Jan. 13).

E-3796 fixes a temporary mail rate for Southern Airways over its entire system (Jan. 13).

E-3797 reissues certificates to Pan American World Airways, Inc., so as to reflect its change of name from Pan American Airways, Inc., (Jan. 13).

E-3798 grants the Greater Paterson Chamber of Commerce of Paterson, N. J., leave to intervene in the *New York City Area Helicopter Service* case (Jan. 13).

E-3799 orders an investigation of, and suspends for 90 days, certain fares, rules, and regulations proposed by Northwest (Jan. 16).

E-3800 approves, subject to certain provisions, agreements embodied in resolutions of the fourth meeting of IATA traffic conference No. 1, held in Mexico City, in November 1949 (Jan. 16).

E-3801 denies motions of certain parties that the Board postpone further action in the matter of a proceeding relative to certain uneconomic competitive service between Minneapolis-Saint Paul and Washington, D. C., and between Detroit and Washington, D. C.; grants certain parties leave to intervene (Jan. 16).

E-3802 fixes a temporary mail rate for Caribbean-Atlantic Airlines over its entire system (Jan. 17).

E-3803 denies motion of Golden North Airways, for termination or settlement of proceedings in the matter of the revocation of its letter of registration No. 666 (Jan. 17).

E-3804 institutes an investigation in the matter of the unauthorized operations of American Shippers, Inc. (Jan. 17).

E-3805 approves termination of agreement between Pan American World Airways and West Coast Airlines, relating to interline traffic agreement and termination thereof (Jan. 17).

E-3806 approves agreement between Capital, Pan American, Continental, Eastern, and Chicago and Southern, relating to reservation arrangements (Jan. 17).

E-3807 approves agreement between United and Railway Express Agency, relating to ground haul service (Jan. 17).

E-3808 approves agreements between Challenger Airlines, various air carriers, and others, relating to pickup and delivery service (Jan. 17).

E-3809 notifies TWA that it may not serve Boulder City, Nev., through the use of New McCarran Field, Las Vegas, Nev., until the Board finds that the public interest will not be adversely affected thereby (Jan. 18).

E-3810 orders an investigation of, and suspends for 90 days, certain fares, rules, and regulations proposed by Chicago and Southern (Jan. 18).

E-3811 approves agreements involving Slick Airways and various other carriers, relating to aircraft maintenance (Jan. 18).

E-3812 institutes an investigation in the matter of the activities and practices of American Airlines (Jan. 18).

E-3813 approves application of Leithold Seaplane Service, for a loan from the Reconstruction Finance Corporation in the amount of $12,000 (Jan. 18).

E-3814 orders Air America to show cause why its letter of registration No. 1758 should not be revoked for knowing and willful violation of the Act (Jan. 19).

E-3815 orders an investigation of, and suspends for 90 days, certain round trip fares proposed by Trans-Texas Airways (Jan. 19).

E-3816 fixes a temporary mail rate for Wien Alaska Airlines, over its routes certificated for the transportation of mail (Jan. 19).

E-3817 approves agreement between American and various other air carries, foreign air carries, and others, relating to interline traffic agreements (Jan. 19).

E-3818 approves agreement between Slick Airways and various other carriers, relating to air freight traffic (Jan. 19).

E-3819 approves agreement between TWA and various air carriers, foreign air carriers, and others, relating to joint use of ground facilities (Jan. 19).

E-3820 dismisses complaints of the Minneapolis Traffic Association and the Minneapolis-Honeywell Regulator Co., relative to the cancellation of certain specific commodity rates by Northwest Airlines (Jan. 19).

E-3821 opinion and order issue a foreign air carrier permit to British West Indian Airways; approved by the President January 19, 1950 (Nov. 10).

E-3822 fixes a temporary mail rate for Pan American in its trans-Pacific operations (Jan. 20).

E-3823 orders an investigation of, and suspends for 90 days, certain rules proposed by National and Eastern relative to air coach flights (Jan. 20).

E-3824 rescinds temporary stay and amends order instituting a show-cause proceeding, in the matter of the application of Turner Airlines, requesting extension of its temporay certificate for route No. 88 for an addiitonal 3 years (Jan. 20).

E-3825 authorizes Turner Airlines to suspend service temporarily at Bedford, Ind., and Kankakee, Ill., on its route No. 88, until June 30, 1950 and December 31, 1950, respectively, or until adequate airport facilities are available (Jan. 20).

E-3826 grants the Green Bay Association of Commerce leave to intervene in the *Michigan-Wisconsin Service* case (Jan. 20).

E-3827 dismisses application of Norseman Air Transport, Inc., for a certificate under section 401 of the Act (Jan. 20).

E-3828 dismisses application of Skyway Transportation, Inc., for a certificate under section 401 of the Act (Jan. 20).

E-3829 dismisses application of the city of Cleveland, Ohio, requesting designation as a coterminal for North Atlantic air service (Jan. 20).

E-3830 dismisses application and amendment thereto of Richard Lusso and Frank Lusso, d. b. a. Glen-Air Pickup Service, for a certificate under section 401 of the Act (Jan. 20).

E-3831 dismisses application of All American, for an amendment of its certificate (Jan. 20).

E-3832 dismisses application of Transportes Aereos Nacionales, for a foreign air carrier permit under section 402 of the Act (Jan. 20).

E-3833 dismisses application of Iowa Airplane Co. (now Mid-West Airlines) for a certificate under section 401 of the Act (Jan. 20).

E-3834 orders Skytrain Airways to show cause why the Board should not revoke its letter of registration No. 225, for knowing and willful violations of the Act (Jan. 20).

E-3835 orders an investigation of, and suspends from January 27 to April 26, 1950, certain fares, rules, and regulations proposed by Pioneer Air Lines (Jan. 23).

E-3836 grants certain parties leave to intervene in the matter of the investigation of the transfer of the routes and properties of National Airlines (Jan. 23).

E-3837 opinion and order issue a foreign air carrier permit to Aerolineas Argentinas FAMA; approved by the President January 23, 1950 (Jan. 13).

E-3838 fixes a temporary mail rate for Turner Airlines over its entire system (Jan. 24).

E-3839 extends temporary exemption granted to United, so as to permit the carrier to engage in the transportation of military propery only between certain United States Air Forces bases (Jan. 24).

E-3840 approves agreements between Philippine Air Lines and United, relating to interline traffic agreement and termination thereof (Jan. 24).

E-3841 extends to April 29, 1950, the period of investigation and suspension of certain fares, rules, and regulations proposed by Eastern and National (Jan. 25).

E-3842 dismisses complaint of Eastern, requesting that the Board reject the Flying Tiger Lines' official charter tariff No. 1, which proposes certain charter flight service rates (Jan. 26).

E-3843 orders Reeve Airways to show cause why the Board should not fix a certain temporary mail rate over its routes certificated for the transportation of mail (Jan. 26).

E-3844 orders an investigation of, and suspends to April 29, 1950, certain fares, rules, and regulations proposed by Braniff (Jan. 26).

E-3845 grants Airnews temporary exemption from the provisions of § 401 (a) of the Act, so as to permit the carrier to engage in air transportation of property to and from Alice, Tex., as an intermediate point between the terminal point San Antonio, Tex., and the intermediate point McAllen, Tex., on segment 2 of its route No. 103 (Jan. 26).

E-3846 dismisses proceeding of investigation and suspension involving certain 15-day round trip fares, rules, and regulations proposed by Pioneer (Jan. 26).

E-3847 dismisses proceeding of investigation and suspension involving certain fares, rules, and regulations proposed by Pioneer (Jan. 26).

E-3848 dismisses proceeding of investigation and suspension involving a certain tariff rule proposed by Air America (Jan. 26).

E-3849 dismisses proceeding of investigation and suspension involving a certain tariff rule proposed by Arrow Airways (Jan. 26).

E-3850 dismisses proceeding of investigation and suspension involving certain fares, rules, and regulations proposed by Braniff (Jan. 26).

E-3851 dismisses proceeding of investigation and suspension involving certain fares for group travel proposed by United (Jan. 26).

E-3852 dismisses proceeding of investigation and suspension involving certain fares, rules, and regulations proposed by West Coast Airlines (Jan. 26).

E-3853 dismisses proceeding of investigation and suspension involving certain fares, rules, and regulations proposed by West Coast Airlines (Jan. 26).

E-3854 grants TWA permission to serve Zurich, Switzerland, and Milan, Italy, on or about February 2, 1950 (Jan. 27).

E-3855 denies petitions of United, American, and Eastern, requesting reconsideration of order serial No. E-2717, which grants Slick Airways leave to intervene in the matter of certain mail rate proceedings (Jan. 27).

E-3856 denies petition of American Overseas, for reconsideration of order serial No. E-2733, which grants limited intervention to Seaboard and Western Airlines in the matter of the mail rates of American Overseas (Jan. 27).

E-3857 fixes a certain temporary mail rate for Ellis Air Lines over its Ketchikan-Juneau route (Jan. 27).

E-3858 grants certain parties leave to intervene in the *Trans-Texas Airways Certificate Renewal* case; denies petitions of the city and chamber of commerce of Kerryville, Tex., requesting leave to intervene (Jan. 27).

E-3859 grants United exemption for 6 months from the provisions of § 403 (b) of the Act, so as to permit the carrier to provide free transportation to technical employees of certain aircraft manufacturers (Jan. 30).

E-3860 approves agreements between American Overseas and various other air carriers, relating to intercompany arrangements (Jan. 30).

E-3861 approves agreements between Pan American World Airways and various other air carriers, relating to interline traffic (Jan. 30).

E-3862 grants the Flying Tiger Line temporary exemption from the provisions of § 401 (a) of the Act, so as to permit the carrier to engage in the transportation of military property only between certain military bases (Jan. 30).

E-3863 denies petition of Capital Airlines, requesting leave to intervene in the matter of the suspension and revocation of letter of registration of Meteor Air Transport, Inc. (Jan. 31).

E-3864 grants E. W. Wiggins Airways exemption for 1 year from the provisions of § 401 (a) of the Act, and of § 203.3 of the economic regulations, so as to permit the carrier to engage in air transportation of persons and property between Brainard Field, Hartford, Conn., and Bradley Field, Windsor Locks, Conn. (Jan. 31).

E-3865 denies application of Federated Airlines requesting exemption from sections 401 and 403 of the Act and parts 221, 222, and 291 of the economic regulations, which would permit the carrier to operate 395 round-trip flights between New York City and Rome, Italy, during 1950 (Jan. 31).

E-3866 approves agreements between Slick Airways and various air carriers, foreign air carriers, and others, relating to intercompany arrangements (Jan. 31).

E-3867 grants Western leave to intervene in the *Transcontinental Coach Type Service* case (Feb. 2).

E-3868 denies application of Sun Flights, Inc., for an exemption from the provisions of § 401 of the Act which would permit the carrier to engage in certain special charter services involving the organization of flights for various groups of persons interested in traveling by air to various parts of the United States (Feb. 2).

E-3869 extends to March 1, 1950, the amended temporary certificate issued to Southwest Airways Co. for route No. 76 (Feb. 2).

E-3870 denies motion of American for a subpoena directing Air America, Inc., and G. Robert Henry, attorney, to produce certain information at the hearing in the *Transcontinental Coach Type Service* case (Feb. 2).

E-3871 orders Alaska Airlines to show cause why the Board should not fix a certain temporary mail rate over its routes certificated for the transportation of mail (Feb. 3).

E-3872 approves agreements between TWA and various other carriers, relating to intercompany arrangements (Feb. 3).

E-3873 approves agreements between American and various other air carriers, relating to intercompany arrangements (Feb. 3).

E-3874 approves agreement between Braniff and various other air carriers, relating to intercompany arrangements (Feb. 3).

E-3875 corrects order serial No. E-3802, dated January 17, 1950, in the matter of the temporary mail rates fixed for Caribbean-Atlantic Airlines, so as to conform the statement of the rates therein to that contained in the order to show cause (order serial No. E-3592) dated November 23, 1949 (Feb. 6).

E-3876 grants the Chamber of Commerce of Pittsburgh leave to intervene in the proceeding relative to determining whether public convenience and necessity require elimination or suspension of certain uneconomic competitive service between Minneapols-Saint Paul and Washington, D. C., and between Detroit and Washington, D. C. (Feb. 6).

E-3877 fixes a certain temporary mail rate for Reeves Airways over its routes certificated for the transportation of mail (Feb. 6).

E-3878 institutes an investigation in the matter of the unauthorized operations in air transportation of Metropolitan Air Freight Depot, Inc. (Feb. 7).

E-3879 dismisses proceeding of investigation and suspension in the matter of 120-day round trip excursion fares proposed by Ellis Air Lines, Pacific Northern Airlines, and Pan American World Airways (Feb. 7).

E-3880, E-3881, and E-3882 order American Overseas Airlines, Pan American World Airways, and TWA to show cause why the Board should not fix certain mail rates for trans-Atlantic operations, as set forth in an attached statement; consolidates dockets Nos. 1666 and 4021 into one proceeding under docket No. 1666 (Feb. 7).

E-3883 dismisses proceeding of investigation and suspension in the matter of certain fares, rules, and regulations proposed by Northwest Airlines, Pan American World Airways, and United Air Lines (Feb. 7).

E-3884 orders an investigation of, and suspends until May 8, 1950, certain rates and charges proposed by Northwest Airlines (Feb. 7).

E-3885 grants Slick Airways permission to serve Wilmington, Del., on route No. 101, on or about February 6, 1950, through the use of New Castle County Airport (Feb. 7).

E-3886 opinion and order issue an amended temporary certificate to Piedmont Aviation for route No. 87 (Feb. 7).

E-3887 orders that certain portions of the transcript of the hearing relative to the mail rates of Florida Airways be withheld from public disclosure until July 11, 1950, or under further order of the Board (Feb. 8).

E-3888 approves, until June 30, 1952, agreement between American Overseas Airlines and certain other carriers, relative to the establishment and conduct of regional traffic conferences of IATA (Feb. 9).

E-3889 orders that material furnished to the Board by air carrier members of IATA pursuant to condition 2 (a) of order No. E-3888, be withheld from public disclosure until further order of the Board (Feb. 9).

E-3890 dismisses application of California Eastern Airways for an exemption from the requirements of § 408 of title IV of the Act (Feb. 10).

E-3891 approves, subject to certain conditions, certain agreements embodied in resolutions of the fourth meeting of traffic conference No. 1 of IATA, between American Overseas Airlines and various other carriers, relating to traffic matters (Feb. 9).

E-3892 approves, subject to certain conditions, certain agreements embodied in resolutions of the sixth meeting of traffic conference No. 2 of IATA, between American Overseas Airlines, and various other carriers, relating to traffic matters (Feb. 9).

E-3893, approves, subject to certain conditions, certain agreements embodies in resolutions of the fifth meeting of traffic conference No. 3 of IATA, between Pan American World Airways and various other carriers, relating to traffic matters (Feb. 9).

E-3894 approves, subject to certain conditions, certain agreements embodied in the resolutions of joint meetings of traffic conferences Nos. 1, 2, and 3 of IATA, between Pan American World Airways and various other carriers, relating to traffic matters (Feb. 2).

E-3895 extends to February 24, 1950, the effective date of the amended certificate issued to Northwest Airlines for route No. 3 (Feb. 9).

E-3896 opinion and order issue a foreign air carrier permit to Servicos Aereos Cruzeiro do Sul; approved by the President February 8, 1950 (Dec. 22).

E-3897 dismisses complaint of Eastern requesting the Board to investigate and suspend proposed reduced rates of Delta's air freight tariff No. 14, CAB No. 30 (Feb. 13).

E-3898 denies application of Continental Air Lines for an exemption pursuant to § 416 (b) of the Act, which would permit the carrier to serve Snyder, Tex., as an intermediate point on segment 3 of route No. 29 (Feb. 10).

E-3899 denies petition of Northern Consolidated Airlines requesting that the Board vacate the suspension of its proposed excursion fares (Feb. 10).

E-3900 grants All American Aviation exemption from the provisions of § 401 (a) of the Act, so as to permit the carrier to serve Johnstown and Altoona, Pa., as intermediate points in segment 1 of route No. 97; authorizes the carrier to suspend certain service on segment 6 of route No. 97 (Feb. 10).

E-3901 amends order serial No. E-2548 so as to authorize Alaska Coastal Airlines to suspend service to Berners Bay and Gypsum, Alaska, until 60 days after final decision of the Board in docket No. 4264 (Feb. 13).

E-3902 denies application of Bonanza Air Lines and joint applications of Monarch Airlines and Arizona Airways, for exemptions so as to permit certain services in Arizona and New Mexico (Feb. 13).

E-3903 grants American Airlines exemption from provisions of section 401 (a) of the Act until September 30, 1950, so as to permit it to provide certain service to Tulsa, Okla., and Memphis, Tenn. (Feb. 13).

E-3904 orders Pacific Northern Airlines to show cause why the Board should not fix temporary mail rates as set forth in the accompanying statement (Feb. 14).

E-3905 permits All American Airways to suspend service temporarily at Butler, Pa. (Feb. 15).

E-3906 poinion and order direct American Air Transport and Flight School to cease and desist from engaging in certain noncertificated operations and from charging fares different than its currently effective tariffs on file with the Board (Feb. 15).

E-3907 grants Wichita Falls, Tex., Chamber of Commerce leave to intervene in the matter of the renewal and amendement of temporary certificate for route No. 64 and the suspension in part of certificates for routes Nos. 29, 9, and 4 (Feb. 15).

E-3908 authorizes Wisconsin Central Airlines to suspend service at Ironwood, Mich., until June 1, 1950, or until night lighting facilities are available at Gogebic County Airport, Ironwood, Mich. (Feb. 15).

E-3909 permits certain interventions in the *Trans-Texas Airways Certificate Renewal* case (Feb. 16).

E-3910 opinion and order amend certificates for routes Nos. 5 and 6 of Eastern Air Lines, by removing restrictions preventing service to Greensboro-High Point, N. C., and Winston-Salem, N. C., on the same flight (Feb. 16).

E-3911 dismisses application of Southwest Airways Co. for a change in service pattern (Feb. 16).

E-3912 fixes temporary mail rates for Alaska Airlines (Feb. 17).

E-3913 dismisses complaint of United Air Lines with respect to Northwest's proportional passenger tariff No. 1. CAB No. 60 (Feb. 17).

E-3914 opinion and order direct Monarch Air Lines and Challenger Airlines Co. to show cause why the Board should not order the alteration of their certificates for routes Nos. 73 and 74, respectively; directs United to show cause why the Board should not suspend until March 31, 1953, authority to serve Rock Springs and/or Cheyenne, Wyo., on United's routes Nos. 1 and 17 (Feb. 17).

E-3915 dismisses complaint of Delta, concerning 30-day round trip excusion fares between Chicago and Havana, proposed by Chicago and Southern Air Lines (Feb. 17).

E-3916 dismisses investigation and suspension proceeding involving joint fares, rules, and routings of air passengers proposed by Pan American World Airways, between point in Oregon and Washington and Honolulu, T. H. (Feb. 17).

E-3917 denies motion of Trans-Texas Airways, requesting that the Board supply it certain data alleged to have been used in ariving at the tentative conclusions in the matter of the expiration of its certificate for route No. 82 (Feb. 20).

E-3918 opinion and order issue a foreign air carrier permit to Linea Aeropostal Venezolana; approved by the President, February 20, 1950 (Jan. 11).

E-3919 denies petition of Inland Air Lines, requesting reconsideration of the Board's opinion in the matter of the amended certificate issued to Northwest Airlines for route No. 3 (Feb. 21).

E-3920 authorizes change in service pattern for All American Airways, so as to permit the carrier to render flag stop service on its route No. 97, subject to certain provisions; grants Eastern and TWA leave to intervene (Feb. 21).

E-3921 authorizes changes in service pattern for Robinson Airlines Corp., so as to permit the carrier to render flag stop service on its route No. 94, subject to certain provisions; grants Colonial and American leave to intervene (Feb. 21).

E-3922 dismisses application of Pan American-Grace Airways for temporary exemption from § 203.5 of the Economic Regulations since the requested relief is no longer required (Feb. 21).

E-3923 dismisses certain applications for certificates from the *Transcontinental Coach Type Service* case (Feb. 21).

E-3924 extends until April 8, 1951, authorization of Pan American World Airways to suspend service at Washington, D. C. (Feb. 21).

E-3925 extends to March 25, 1950, the exemption granted to United, so as to permit the carrier to engage in air transportation of military property only between certain United States Air Force bases (Feb. 21).

E-3926 extends to April 1, 1950, the exemption granted to the Flying Tiger Line, so as to permit the carrier to engage in air transportation of military property only between certain United States military and naval bases (Feb. 21).

E-3927 dismisses proceeding of investigation and suspension in the matter of certain fares, rules, and regulations proposed by Chicago and Southern Air Lines (Feb. 23).

E-3928 dismisses proceeding of investigation and suspension in the matter of certain fares, rules, and regulations proposed by Pioneer Air Lines (Feb. 23).

E-3929 dismisses proceeding of investigation and suspension in the matter of certain fares, rules, and regulations proposed by Northwest Airlines (Feb. 23).

E-3930 grants Alaska Airlines temporary exemption from § 292.2 (b) of the economic regulations and certain sections of order serial No. E-3134, so as to permit the carrier to engage in charter and special service trips between Paine Field, Everett, Wash., and Fort Richardson, Anchorage, and Ladd Field, Fairbanks, Alaska, pursuant to its contract with the Army (Feb. 23).

E-3931 approves interlocking relationship existing as a result of the holding of certain positions by Thomas D. Neelands, Jr., in Capital Airlines and Beech Aircraft Corp. (Feb. 23).

E-3932 orders that the record be reopened in the matter of the renewal and amendment of certificates held by Pioneer Air Lines and temporary suspension in part of certain certificates of Continental Air Lines, Braniff Airways, and American Airlines (Feb. 23).

E-3933 authorizes Pioneer Air Lines to suspend service temporarily at Las Cruces, N. Mex., on route No. 64 (Feb. 24).

E-3934 orders investigation and suspension of certain fares, rules, and regulations proposed by Eastern and National (Feb. 24).

E-3935 amends order serial No. E-3869, so as to extend to March 31, 1950, the effective date of temporary certificate issued to Southwest Airways Co. for route No. 76 (Feb. 24).

E-3936 denies motion of Eastern Air Lines, requesting that the Board sever the proposed Eastern-National interchange agreement in the matter of the investigation of the routes and property of National (Feb. 27).

E-3937 rescinds order serial No. E-3749 so as to vacate the suspension of a certain rule proposed by Northwest (Feb. 27).

E-3938 orders an investigation of, and suspends for 90 days, certain fares, routings, and other provisions proposed by Pioneer Air Lines (Feb. 27).

E-3939 orders an investigation of, and suspends for 90 days, certain charges for excess baggage proposed by Braniff, Continental, and Pioneer (Feb. 27).

E-3940 grants American Overseas permission to inaugurate service at Bremen-Hamburg, Germany, on or about March 1, 1950, through the regular use of Fuhlsubuttel Airport (Feb. 27).

E-3941 approves interlocking relationships existing as a result of the holding by L. R. Tanner of certain positions in Railway Express Agency, Inc. (Feb. 28).

E-3942 approves interlocking relationships existing as a result of the holding of certain positions by Robert J. Fletcher in Railway Express Agency, Inc. (Feb. 28).

E-3943 dismisses proceeding of suspension and investigation in the matter of certain rates and charges proposed by Northwest Airlines (Feb. 28).

Mandatory Flight Plans Not Contemplated for All Areas

(*Continued from page 37*)

is that filing a flight plan is simplicity itself. It can be done in person, by telephone, or by radio from the plane in flight.

"Another very important fact is that we couldn't possibly handle flight plans on all personal flying without a great increase in our facilities and personnel. It will tax our facilities to add such procedure to the congested areas around major terminals, if and when some such requirement may become necessary. If it does become necessary, it will be used only in congested areas and then solely to promote safety, and we know we can expect the cooperation of all pilots in that effort."

November Mileage Figures Given

The 16 domestic trunk airlines flew 98.31 percent of their scheduled mileage in November 1949, the Civil Aeronautics Board has announced. Of the 37.18 average available seats per mile, 53.69 percent were occupied by revenue passengers in November 1949, as compared with 34.24 average available seats, of which 53.76 percent were occupied by revenue passengers for November 1948.

Drop Noted in Number Of Pilot Certificates Issued by CAA in 1949

The total number of student, private, and commercial certificates issued by the Civil Aeronautics Administration during 1949 dropped below the 100,000 level for the first time since the close of World War II. The 1949 total for these three airmen categories was 86,976, a decline of 59 percent below the 1948 total of 212,714.

Student pilot issuances numbered 49,575 in 1949 as against 117,725 the previous year and an all-time high of 192,924 in 1947. Student issuances reached their postwar low in January 1949 when only 2,629 were approved. It was a bit encouraging to note that in the last quarter of 1949 more student pilot certificates were approved than in the corresponding period of 1948.

Private pilot issuances declined from 86,838 in 1948 to 30,278 in 1949. August, when 3,585 certificates were issued, was the best month of the year. The commercial pilot group registered a smaller decline as the total fell from 8,151 to 7,123.

Monthly figures for the past 4 years show the rapid growth in airman activity which occurred in 1946 and 1947 and the decline which has been under way since mid-1948.

Pilot Certificates Issued

Month	4-year totals	1949	1948	1947	1946
Student					
January	29,397	2,629	10,623	11,200	4,945
February	31,301	2,746	10,191	12,881	5,483
March	37,718	3,718	12,215	14,436	7,349
April	48,069	3,945	13,866	17,659	12,599
May	54,275	4,708	14,839	18,793	15,935
June	58,670	4,940	17,176	18,620	17,934
July	63,598	4,923	13,477	23,263	21,935
August	52,082	5,537	8,529	17,549	20,467
September	48,965	4,839	5,656	20,339	18,131
October	49,049	4,346	4,306	18,204	22,193
November	31,038	4,064	3,665	9,081	14,228
December	29,494	3,180	3,182	10,899	12,233
Total	533,656	49,575	117,725	192,924	173,432
Private					
January	19,224	2,136	7,616	7,433	2,039
February	16,566	1,711	6,263	6,692	1,900
March	18,844	2,349	6,754	7,671	2,070
April	20,589	2,157	6,877	8,450	3,105
May	23,765	2,742	7,929	9,776	3,318
June	28,796	2,969	10,162	11,411	4,254
July	31,350	3,003	9,614	12,541	6,192
August	32,648	3,585	10,116	11,737	7,210
September	33,003	2,895	8,507	13,441	8,160
October	30,400	2,481	5,413	13,687	8,819
November	22,109	2,322	4,318	8,051	7,418
December	22,420	1,928	3,269	9,127	8,096
Total	299,714	30,278	86,838	120,017	62,581
Commercial					
January	9,736	526	443	385	8,382
February	6,284	476	437	433	4,938
March	6,261	615	527	482	4,637
April	7,159	629	796	705	5,029
May	6,081	671	764	627	4,019
June	5,583	732	900	765	3,186
July	5,597	731	805	785	3,276
August	4,547	733	862	500	2,452
September	3,960	572	777	651	1,960
October	3,314	551	619	544	1,600
November	2,968	477	631	393	1,467
December	2,582	410	590	398	1,184
Total	64,072	7,123	8,151	6,668	42,130

Helpful Publications

Publications listed below are on sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Orders must be accompanied by money order or check made payable to the Superintendent of Documents.

Flight Assistance

Airman's Guide and Flight Information Manual ---------- $6 a year

(The Airman's Guide, published every 2 weeks, contains three sections: Directory of Airports, Radio Facility Data, and Notices to Airmen. The Flight Information Manual supplements the Airman's Guide and is issued semiannually.)

Airports

Airport Accounting, Budgeting, and Insurance ---------- 15 cents

(In three parts, with applicable charts and diagrams.)

Airport Buildings ---------- 20 cents

(Problems of airport building design are discussed and several solutions suggested.)

Airport Design ---------- 30 cents

(Provides basic information on all phases of airport construction.)

Airport Drainage ---------- 30 cents

(Contains information helpful in developing an efficient and economical airport drainage system.)

Airport Financial Statements ---------- 15 cents

(Presents recommended financial forms to meet the need of airports.)

Airport Turfing ---------- 25 cents

(A guide for airport owners, operators, builders, and others interested in the development of turf for airports. Describes various problems involved and presents methods used in establishing and maintaining a good turf.)

Legislative History of the Federal Airport Act (Two Volumes) ---------- $4 a set

(Gives in detail congressional proceedings leading up to the adoption of the Federal Airport Act.)

Small Airports ---------- 15 cents

(Answers many problems confronting communities or individuals who want to build a small airport.)

Standard Specifications for Construction of Airports ---------- $2

(Contains specification items for construction of airports and air parks. Covers clearing and grubbing, grading, drainage, paving, lighting, turfing, and incidental construction.)

Flight Training

Aircraft Powerplant Handbook ---------- $1.25

(For students, mechanics, pilots, and engineers who have only superficial knowledge of aircraft powerplant fundamentals.)

Facts of Flight ---------- 50 cents

(A nontechnical manual, with chapters on airplane flight, stalls, spins, airplane structure, airplane engines, flying the plane, airport traffic, seaplanes, and safety in flight.)

Path of Flight ---------- 40 cents

(Practical information about basic navigation of aircraft, presented in brief form for the use of the private pilot.)

Realm of Flight ---------- 60 cents

(Presents practical information about the effect of atmospheric conditions upon flight.)

Commercial Pilot Examination Kit ---------- 30 cents

(Contains a summary of subject matter on which the examination is based, reference material for study, and four groups of examination questions similar to those used in the official certifying examination.)

Flight Instructor Oral Examination Guidebook ---------- 5 cents

(Prepared as an aid to the prospective applicant for a flight instructor rating.)

Miscellaneous

Industrial Flying ---------- 10 cents

(A brief description of various uses for the airplane in industrial flying.)

Student Pilot Guide ---------- 10 cents

(Presents information of particular importance to student pilots during the early stages of flight training.)

Terrain Flying ---------- 25 cents

(Describes the special problems and hazards encountered in flying over various kinds of terrain and proper precautions.)

Scheduled Air Carrier Operations

(Source: CAB Form 41)

Domestic: January 1950

Operator	Revenue miles	Revenue passengers	Revenue passenger-miles (000)	Passenger seat-miles (000)	Revenue passenger load factor (percent)	Ton-miles flown: Express	Freight	United States mail
TRUNK								
American Airlines	4,383,889	195,703	104,916	185,159	56.66	508,404	2,509,972	766,433
Braniff Airways	900,991	39,907	13,524	30,116	44.91	70,276	98,709	90,866
Capital Airlines	1,418,116	72,936	21,408	50,898	42.06	156,928	536,353	99,358
Chicago & Southern Air Lines	544,374	18,883	6,711	15,165	44.25	38,343	57,600	42,134
Colonial Airlines	225,808	9,673	2,611	4,764	54.81	4,523	6,555	6,919
Continental Air Lines	454,972	12,589	4,425	12,782	34.62	6,487	23,004	16,867
Delta Air Lines	1,189,876	41,384	20,165	42,074	47.93	67,530	163,498	87,620
Eastern Air Lines	4,441,045	171,591	91,647	165,103	55.51	317,074	795,989	377,791
Inland Air Lines	230,715	6,169	2,401	4,475	53.65	3,459	4,550	8,088
Mid-Continent Airlines	653,955	23,085	6,734	13,733	49.04	14,726	27,709	23,079
National Airlines	981,242	30,572	20,047	38,696	51.81	51,014	203,727	56,263
Northeast Airlines	246,766	15,938	3,049	8,014	38.05	11,420	10,521	8,364
Northwest Airlines	1,500,785	43,989	27,737	61,384	45.19	120,027	362,893	206,988
Transcontinental & Western Air	3,361,327	85,492	59,078	115,887	50.98	338,186	897,473	593,762
United Air Lines	3,874,706	127,104	76,594	144,595	52.97	588,935	1,650,226	864,769
Western Air Lines	537,033	19,661	7,662	19,801	38.70	29,110	38,342	52,855
Trunk total	24,945,600	914,676	468,709	912,646	51.36	2,326,442	7,387,112	3,302,156
FEEDER								
All American Airways	206,800	5,367	714	4,343	16.44	6,368	0	3,077
Bonanza Air Lines	70,867	1,096	345	1,305	26.44	86	242	315
Central Airlines	117,341	257	29	352	8.24	0	0	1,227
Challenger Airlines	98,017	1,380	400	1,960	20.41	1,763	3,759	2,374
Empire Air Lines	83,967	2,438	483	1,750	27.60	783	0	1,204
Helicopter Air Service	24,035	0	0	0	–	0	0	617
Los Angles Airways	27,577	0	0	0	–	0	0	3,372
Mid-West Airlines	109,675	398	59	439	13.44	0	0	1,183
Monarch Air Lines	144,086	1,874	461	2,594	17.77	1,447	6,970	1,803
Piedmont Aviation	250,749	6,333	1,343	5,266	25.50	3,467	4,043	3,052
Pioneer Air Lines	308,664	7,826	2,150	7,445	28.88	2,832	7,074	7,523
Robinson Airlines	75,342	2,613	394	1,400	28.14	1,982	1,591	1,242
Southern Airways	145,302	1,440	258	3,034	8.50	2,275	0	3,664
Southwest Airways	179,799	5,913	1,116	3,776	29.56	2,160	6,983	3,473
Trans-Texas Airways	243,274	3,230	749	5,108	14.66	2,994	3,634	3,882
Turner Airlines	23,243	291	49	453	10.82	447	0	131
West Coast Airlines	78,195	2,272	318	1,642	19.37	499	0	630
Wiggins, E. W., Airways	18,125	86	8	72	11.11	0	0	81
Wisconsin-Central Airlines	134,399	2,311	353	1,067	33.08	2,157	0	1,862
Feeder total	2,339,457	45,125	9,229	42,006	21.97	29,260	34,296	40,712
TERRITORIAL								
Caribbean-Atlantic Airlines	47,228	5,398	441	1,093	40.35	0	2,449	675
Hawaiian Airlines	221,079	23,328	3,049	4,905	62.16	9,354	32,510	3,892
Territorial total	268,307	28,726	3,490	5,998	58.19	9,354	34,959	4,567
Grand total	27,553,364	988,527	481,428	960,650	50.11	2,365,056	7,456,367	3,347,435

International and Overseas: January 1950

Operator	Revenue miles	Revenue passengers	Revenue passenger-miles (000)	Passenger seat-miles (000)	Revenue passenger load factor (percent)	Ton-miles flown: Express	Freight	United States mail	Parcel post
American Airlines	203,880	7,069	5,628	9,560	58.87	1,027	98,144	11,459	0
American Overseas Airlines	383,914	7,369	9,837	18,396	53.47	201,236	0	81,745	27,227
Braniff Airways	176,526	1,309	2,601	7,577	34.33	0	41,134	2,166	0
Chicago & Southern Air Lines	184,059	1,826	2,478	7,575	32.71	0	38,795	2,284	150
Colonial Airlines	33,327	536	418	1,466	28.51	0	914	402	6
Eastern Air Lines	64,480	1,462	1,520	3,207	47.40	0	47,578	3,851	127
National Airlines	65,446	6,200	1,695	3,533	47.98	17,178	0	1,010	0
Northwest Airlines	440,245	2,665	5,050	10,688	47.25	3,946	322,901	150,867	0
Pan American World Airways:									
Atlantic Division	880,213	6,815	16,536	30,886	53.54	538,329	0	185,483	49,204
Latin American Division	2,357,419	57,073	44,040	84,235	52.28	1,622,427	0	219,537	0
Alaska Operations	176,044	2,332	2,407	5,420	44.41	248,528	0	27,651	0
Pacific Operations	814,196	5,791	15,548	33,910	45.85	391,223	0	400,150	0
Pan American-Grace Airways	475,781	7,398	7,487	17,604	42.53	167,846	0	30,994	279
Transcontinental & Western Air	895,278	5,852	15,486	29,995	51.63	0	427,366	211,415	36,230
United Air Lines	180,000	1,551	3,722	8,544	43.56	0	27,171	45,971	0
Uraba, Medellin & Central Airways	8,632	228	76	154	49.35	2,586	0	0	0
Total	7,339,440	115,476	134,529	272,750	49.32	3,194,326	1,004,003	1,374,985	113,223

Airport Design Data Given

"Airport Design" is the title of a Civil Aeronautics Administration publication which contains basic information on all phases of airport construction—size, site selection, drainage, grading, turfing, paving, lighting, buildings, and maintenance. Various charts and drawings are used to illustrate the different aspects of airport planning. There is also a chapter on heliport facilities.

"Airport Design" is on sale for 30 cents a copy by the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Regulations of The Administrator

(Through March 31, 1950)

Note: Regulations of the Administrator marked with an asterisk (*) on the list given below may be obtained from the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C., at the prices indicated. Remit check or money order, made payable to the Superintendent of Documents, directly to the Government Printing Office. Copies of amendments may be obtained free of charge from the Office of Aviation Information, CAA, Washington 25, D. C., or may be found in the Federal Register for the dates indicated in parentheses. Copies of the Federal Register are obtainable from the Superintendent of Documents.

Part 405—Procedure of the Civil Aeronautics Administration. (Published in the Federal Register, part II, section 2, July 16, 1949. 20¢.)

*Part 406—Rules of Practice Governing Proceedings to Alter, Amend, or Modify Certificates. (5¢.)

*Part 407—Seizure of Aircraft. (5¢.)

*Part 450—Inter-American Aviation Training Grants. (5¢.)

*Part 501—Aircraft Registration Certificates. (5¢.)

*Part 502—Dealers' Aircraft Registration Certificates. (5¢.)

*Part 503—Recordation of Aircraft Ownership. (5¢.)

*Part 504—Recordation of Encumbrances Against Specifically Identified Aircraft Engines. (5¢.)

*Part 505—Recordation of Encumbrances Against Aircraft Engines, Propellers, Appliances, or Spare Parts. (5¢.)

*Part 550—Federal Aid to Public Agencies for Development of Public Airports. (10¢.)

Amendment 1. (Aug. 11, 1949.)
Amendment 2. (Sept. 1, 1949.)
Amendment 3. (Nov. 18, 1949.)
Amendment 4. (Jan. 18, 1950.)
Amendment 5. (March 11, 1950.)

*Part 555—Acquisition of Government-owned Lands for Public Airport Purposes. (5¢.)

*Part 560—Reimbursement for Damage to Public Airports by Federal Agencies. (10¢.)

Amendment 1. (Nov. 16, 1949.)

*Part 570—Rules of Washington National Airport. (5¢.)

Amendment 1. (Nov. 26, 1949.)

*Part 600—Designation of Civil Airways (including amendments 1 through 18). (10¢.)

Amendment 19. (July 28, 1949.)
Amendment 20. (Sept. 30, 1949.)
Amendment 21. (Oct. 15, 1949.)
Amendment 22. (Nov. 18, 1949.)
Amendment 23. (Dec. 2, 1949.)
Amendment 24. (Jan. 7, 1950.)
Amendment 25. (Jan 14, 1950.)
Amendment 26. (Feb. 7, 1950.)
Amendment 27. (March 31, 1950.)

*Part 601—Designation of Control Areas, Control Zones, and Reporting Points (including amendments 1 through 22). (15¢.)

Correction. (Nov. 17, 1949.)
Amendment 23. (July 28, 1949.)
Amendment 24. (Sept. 30, 1949.)
Amendment 25. (Oct. 15, 1949.)
Amendment 26. (Nov. 18, 1949.)
Amendment 27. (Dec. 2, 1949.)
Amendment 28. (Jan. 7, 1950.)
Amendment 29. (Jan. 14, 1950.)
Amendment 30. (Feb. 7, 1950.)
Amendment 31. (March 31, 1950.)

*Part 625—Notice of Construction of Alteration. (5¢.)

Part 635—Reproduction and Dissemination of Current Examination Materials. (Available without charge on request to the Office of Aviation Information, CAA.)

CAM Supplements and Aviation Safety Releases

Supplements and releases listed below were issued between February 15 and March 15 and are obtainable from the Office of Aviation Information, Civil Aeronautics Administration, Department of Commerce, Washington 25, D. C.

CAM Supplements

CAM No.	Supplement No.	Title	Date
3	5	Compilation of CAA Rules, Policies, and Interpretations Which Apply to Part 3 of the CAR	3/8/50
42	1	Operating Limitations and Performance Data	3/1/50

Aviation Safety Releases

No.	Subject	Date
332	Designated Pilot Examiners	2/24/50

Air Regulations . on April 1, 1950

Title	No.	Part: Price	Part: Date	Part: No. of Amendments	Manual: Price	Manual: Date	Manual: No. of Supplements
Aircraft							
Airworthiness Certificates	1	$0.05	5/10/49	.....	None	None	.....
Type and Production Certificates	2	.05	8/1/49	[1] 1	$0.10	8/1/46	.....
Airplane Airworthiness; Normal, Utility, Acrobatic, and Restricted Purpose Categories	[1] 3	.15	11/1/49	[2] 2	None	None	5
Airplane Airworthiness	4a	.....	.....	[3] 3	.75	7/1/44	1
Airplane Airworthiness; Transport Categories	[1] 4b	.20	10/1/49	[2] 2	None	None	1
Rotorcraft Airworthiness	6	.....	.....	[2] 2	None	None	.....
Aircraft Airworthiness; Limited Category	9	.05	11/1/49	.....	None	None	.....
Aircraft Engine Airworthiness	13	.05	8/1/49	[3] 1	None	None	.....
Aircraft Propeller Airworthiness	14	.05	11/1/49	[3] 1	.15	5/1/46	.....
Aircraft Equipment Airworthiness	15	.05	11/1/49	[2] 2	No stock	7/1/38	.....
Aircraft Radio Equipment Airworthiness	16	.05	2/13/41	.....	No stock	2/13/41	.....
Maintenance, Repair, and Alteration of Certificated Aircraft and of Aircraft Engines, Propellers, and Instruments	18	.05	8/15/49	.....	$1.25	8/1/49	.....
Airmen							
Pilot Certificates	20	.05	8/1/49	2	None	None	.....
Airline Transport Pilot Rating	21	.05	8/15/49	1	None	None	.....
Lighter-than-air Pilot Certificates	22	.05	11/1/49	.....	None	None	.....
Mechanic Certificates	24	.05	9/1/49	[3]	None	None	.....
Parachute Technician Certificates	25	.05	11/1/49	.....	None	None	.....
Air-traffic Control-tower Operator Certificates	26	.05	11/1/49	.....	None	None	1
Aircraft Dispatcher Certificates	27	05	11/1/49	.....	None	None	1
Physical Standards for Airmen	29	.05	10/1/49	1	None	None	.....
Flight Radio Operator Certificates	33	.05	2/15/50	.....	None	None	.....
Flight Navigator Certificates	34	.05	11/1/49	.....	None	None	1
Flight Engineer Certificates	35	.05	11/1/49	.....	None	None	1
Operation Rules							
Air Carrier Operating Certification	40	.05	9/1/49	[3]	None	None	1
Certification and Operation Rules for Scheduled Air Carrier Operations Outside the Continental Limits of the United States	41	.05	11/15/49	1	None	None	4
Irregular Air Carrier and Off-Route Rules	42	.10	6/1/49	[4] 3	$1.00	9/1/49	1
General Operation Rules	43	.05	8/1/49	1	None	None	3
Foreign Air Carrier Regulations	44	.05	9/1/49	.....	None	None	.....
Commercial Operator Certification and Operation Rules	45	.05	11/15/49	[5] 1	None	None	.....
Operation of Moored Balloons	48	.05	9/1/49	.....	None	None	.....
Transportation of Explosives and Other Dangerous Articles	49	.10	7/20/49	.....	None	None	.....
Air Agencies							
Airmen Agency Certificates	50	.05	10/1/49	[2] 2	.15	5/15/46	4
Ground Instructor Rating	51	.05	10/10/49	.....	None	None	1
Repair Station Rating	52	.05	10/15/49	.....	No stock	2/41	1
Mechanic School Rating	53	.05	10/15/49	.....	Free	5/40	.....
Parachute Loft Certificates and Ratings	54	.05	10/15/49	.....	.15	7/1/48	.....
Air Navigation							
Air Traffic Rules	60	.10	8/1/49	.....	.....	.....	.....
Scheduled Air Carrier Rules	61	.10	9/1/49	[7] 1	None	None	4
Notice and Reports of Aircraft Accidents and Missing Aircraft	62	.05	5/1/49	.....	None	None	.....

[1] Certain aircraft may comply with the provisions of this part or part 4a.
[2] Special regulation SR-340.
[3] Special regulations SR-333, SR-335, SR-341.
[4] Special regulations SR-334, SR-337.
[5] Special regulations SR-337, SR-343.
[6] Special regulation SR-336.
[7] Special regulations SR-334, SR-341.
[8] Special regulation SR-342.

Note: Those parts and manuals for which there is a price are obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Remittances should be by check or money order, payable to the Superintendent. Currency is sent at sender's risk. Amendments, Special Regulations and free Parts are obtained from the Publications Section, Civil Aeronautics Board, Washington 25, D. C.; Supplements and free Manuals from the CAA Office of Aviation Information, Dept. of Commerce, Washington 25, D. C.

Light Plane Market Best in Farm-Ranch Areas

Today's light plane finds its best sales prospects in the sparsely populated areas, with aircraft registrations heaviest, in relation to population, in the Mountain, Pacific, and West North Central States, according to an analysis by the Civil Aeronautics Administration.

In a study titled "Geographic Aspects of the Civil Aircraft Market," the program planning staff of the CAA analyzes aircraft ownership in relation to population, landing fields, consumer purchasing power, and weather, attempting to find out why per capita registrations in some sections are more than eight times greater than in others.

The study concludes that the distances between population centers in the farm and ranch States of the west make aircraft ownership more advantageous than in the east, where the saving in airport-to-airport time often does not offset the ground travel time.

In this connection, the study notes that "the populous areas which have the greatest need for more convenient landing areas actually have the smallest number of airports relative to their population."

Flying Weather Is Factor.—Generally speaking, good flying weather was found to have a stimulating effect on aircraft holdings, while high income induced greater ownership only where the utility factor was great. Thus, high income States such as New York and New Jersey rank near the bottom in per capita aircraft ownership.

Throughout the United States, rural registrations were up an average of 12 percent from 1948 to 1949, while metropolitan ownership was off some 6 percent. Since approximately 60 percent of the United States population lives in metropolitan centers and counties with 25,000 or more people, where the utility of the present personal plane is limited, the study suggests that "if the personal plane is to become a significant medium of transportation, it must incorporate the kind of utility which will make it useful to the average man in his day-to-day routine."

Copies of the report are available from the CAA Office of Aviation Information.

Report on Los Angeles Meeting Made by Airports Advisory Group

A report based on the most recent meeting of the Airport's Advisory Committee of the Civil Aeronautics Administration has been submitted by the committee's chairman, A. B. Curry, director of the Dade County Port Authority, Miami, Fla. The full text of the report, submitted in the form of a letter to D. W. Rentzel, Administrator of Civil Aeronautics, follows:

"Respectfully submitted herein is report and recommendations of the second meeting of the Airports Advisory Committee. This second meeting was held in Los Angeles, Calif., during the week of January 23, 1950. The gracious hospitality and courtesies extended to the committee during its week of deliberations and discussions were greatly appreciated by all who were in attendance.

"The enthusiasm and cooperation by all participating; i. e., the manufacturers, the petroleum industry, airline operators, airport managers, public officials, and of audience groups was heartening to the committee. To put it another way, the theme of everyone in the aviation industry present was that of seeking cooperation and information particularly as it related to the planning, operations technique, and fiscal aspects involved in the operation of airports.

"The committee believes it has made progress towards attaining a degree of unity by endeavoring to bring together the various segments of industry. A myriad of interesting problems were presented and discussed. These are incorporated in the 563 pages of the minutes of the meeting. Copies of the minutes are now in possession of each member of the committee and are on file with the executive secretary of the committee, Civil Aeronautics Administration, Department of Commerce, Washington 25, D. C.

"In view of the many problems confronting the committee, it was decided to submit to you at this time for consideration the following recommendations:

"(1) Positive Control of Traffic at the Airport.—The committee is of the opinion that positive control of traffic at the airport under any and all conditions is one of the top problems of the industry today; therefore, it is felt that in order for the committee to be of assistance to the Administration the committee should be furnished all available material relating to the Administration's plan for implementation of air navigation aids to handle en route and terminal traffic. The committee would like to have also for its consideration the plans of the military for the handling of their traffic at certain civilian airports. If the above information is made available it will be disseminated to all segments of the industry for their comments in order that the soundest recommendations can be made at our next meeting. I have requested the members to carry out 'this theme of cooperation with all in their respective regions.'

"(2) Marking of Unusable or Abandoned Airports.—Because of the seriousness of the inherent dangers as it relates to safety at unusable or abandoned fields, the committee recommends that the Administration collaborate with State and local aviation officials in a program to adequately mark such airports and that the Administration consider the possibility of incorporating in the Airman's Guide a detachable list of such airports in order that the airport operators may post such a list in the operations room of the airport. This coordinated program should be especially pointed towards the personal use or smaller type airport which is used in the main by the private or itinerate pilot.

"(3) Instrumentation Problems at Airports.—It is recommended that the Administration take a more active part with the operators in initiating and establishing controlled traffic patterns and understandable procedures at the airport and in working out the enforcement program to be established. This is brought to the attention of the Administration because the airport operators have an intense interest in and are necessary parties to any plan for the use of aids to navigation, traffic control, or traffic patterns. It is the feeling of the committee that if this problem is attacked by the airport operators and the Administration jointly much benefit can be derived. Cooperative planning of this type for airport terminals cannot be overemphasized.

"(4) Voice Identification at Omnirange Stations.—The attention of the committee was called to the low cost involved in the implementation of the present and proposed omnirange stations with voice identification. It is recommended by the committee that the merits in implementing the stations with voice identfication be brought to the attention of all concerned in order that a concerted effort can be made to obtain the funds required for such implementation.

"(5) Combine Services at Certain INSAC and Airport Traffic Control Towers.—After careful consideration of the complex problems related to combining the operations of the interstate airway communication stations with the operations of the airport traffic control towers, it was recommended that where airport traffic control towers are being operated that a survey be initiated as to the advisability of combining them with the communication station for the purpose of effecting economy and providing better service. The committee is aware that possibly this recommendation cannot be adopted at all airports; i. e., the larger terminals, but possibly at the large terminals consideration could be given to the design of a tower which would include the communication facilities in close proximity to the tower. It is felt that if this is possible that it would greatly facilitate the handling of traffic at the airport and possibly result in a savings of personnel.

"(6) Improvement of Airport-City Highways.—The committee would like to take this opportunity to commend the Administration for initiating in collaboration with the Public Roads Administration a program to accelerate vehicular traffic for the users of the airport. It is felt by the committee that this program should be given a priority if possible in order to alleviate existing traffic conditions at certain locations; e. g., in the off season in Miami, vehicular traffic can move from the airport to the beach hotel area in approximately 20 minutes, whereas during the season it takes approximately 50 minutes. The above example is only mentioned because of the needs for immediate surveys of these existing traffic problems at our larger metropolitan areas.

"(7) Two-Way Radio Requirements.—There was much discussion pro and con for two-way radio requirements at certain airports. After careful consideration of this item, the committee was of the opinion that the Administration should initiate a study immediately at all locations in order to establish the locations where two-way radio should be required. If such a requirement is made for a specific location it is our opinion that they should be included on the aeronautical charts in order that the itinerant or private pilot desiring to use such locations is properly warned of its requirements. The reason for recommending that some symbol for the requirement of two-way radio be included on the aeronautical charts is that the average pilot does not keep himself up to date with the civil air regulations as they apply to certain designations.

"(8) Increase Federal Participation Applicable to Land Cost Under Federal Airport Act to 50 Percent.—The committee is still of the opinion that the present limitation of 25 percent of Federal participation in the cost of land needed for airport development should be raised to 50 percent. Specific examples were brought out at the meeting where public agencies prior to the Federal airport program had purchased poorly located airport sites many miles from the community because of the low initial cost of the land. This has resulted in false economy because access roads and highways have had to subsequently be constructed for the airport users or the field abandoned because of the lack of users. It is the understanding of the committee that the National Association of State Aviation Officials, the American Municipal Association, Conference of Mayors and others are vitally interested in this and all in favor of the present amendment known as S-1281 which would amend the Federal Airport Act to provide for Federal participation up to 50 percent of the cost of land acquisition.

"(9) Loans for Airport Development.—The committee would like to call to the attention of the Administration the difficulty in obtaining loans for airport development not eligible under the Federal airport program; i. e., hangars, hotels, and other revenue-producing facilities. It is the thought of the committee that the Administration at the Washington level may desire to discuss this matter with the Reconstruction Finance Corporation, and other lending agencies in order that they may look into the feasibility and desirability of granting long-term loans for such purposes. Such financing and loans will be needed for facilities to handle in the immediate future the huge volume of air cargo at all types of terminal airports.

"(10) Eliminate Federal Inventory Control Requirements Applicable to Surplus Personal Property Transferred to Public Airports.—It is recommended that all personal property obtained by public agencies for airports through surplus channels several years ago; i. e., trucks, tools, mowers, etc., be taken off the Civil Aeronautics Administration's inventory records. This would eliminate inventory checks by the Administration and give greater flexibility to the recipients of the property to sell and salvage such surplus property. The receipts from the sale or salvage of surplus property should be placed into a fund to provide for the maintenance or betterment of the airport facility.

"(11) Federal Maintenance for Surplus Airports.—This committee since inception has been confronted with the question of Federal maintenance for public airports serving interstate commerce and the needs of the military. Many of these airports are over and beyond the current civil and military needs of the communities. These communities are now faced with the problem of spending large sums of money to adequately maintain these airports. In many instances there are multiple runways averaging 8,000 feet or better which under the terms of the conveyance transferring the property must be maintained. Many of these airports are being maintained to provide scheduled service to the communities, such service being only four or five schedules per day of maybe the nonscheduled type requiring only half of the existing runways. In many instances operators are presently charging excessive landing fees for a few schedules because of the huge expense involved in maintaining their facility.

"In view of the above, the committee would like to recommend that the Administration in collaboration with the military appraise these installations by studying the current and projected needs, both from the standpoint of civil and military, in order that a determination be made of the respective facility requirements with the objective that the portions not needed

be abandoned, or if needed in the foreseeable future, that Federal funds for the maintenance of such be provided up to 100 percent. Every community should be provided with air service; i. e., the small communities as well as the large.

"Also in connection with the above study, it is recommended that consideration be given by the Federal Government to assist certain municipalities and States with the purchase of certain types of equipment such as rotary snow plows and fire equipment.

"(12) Development of Airports.—The committee is aware of the fact that the development of airports is expensive and costly. Therefore, collaboration in the planning and construction should not only be coordinated with public officials but also with contemplated users of the airport; e. g., the airlines, aeronautical concessionaires, and others. It is also recommended that the Civil Aeronautics Board initiate closer liaison with the Administration prior to the certification of air services to communities to be sure that such communities either have an airport available for such service or have, prior to the time of certification, furnished proof of their financial ability to provide an adequate airport.

"(13) Weather Bureau Activities at Airports.—It was pointed out quite vividly to the committee that at certain airports Weather Bureau observations were being made from roof tops approximately 1 to 1½ miles from the end of the runways. There appears to be a need for a study to be instituted at major terminals in order that a more complete coverage of the weather at the airport be ascertained for the airport traffic control tower and center.

"(14) Free Space at Airport Terminals.—It was the consensus of opinion of the committee that free space at major airport terminals or international airports was being abused by Federal agencies; i. e., Customs, Immigration, Post Office, and United States Public Health. In many instances, the airport operator was increasingly the user charge to the air lines in order that the above services could be provided. An examination of the Federal Airport Act reveals that free space should be granted for traffic control activities. Therefore, it is recommended that the Administration, in collaboration with the Federal agencies involved, initiate a study of space requirements for their respective activities with a view of having annual appropriations made available by the Congress to pay the Federal share of the cost for space in carrying out their activities. At the present time it is evident from discussion with many operators that field representatives of the Federal agencies are taking an arbitrary stand that either the space be furnished free or they will not provide the airport with the necessary service.

"(15) Airport Rates and Charges.—One of the most important questions facing the aviation industry today is that of rates and charges at airports. There are currently many methods and formulas which are being used to compute rates and charges at airports. This has created much confusion in the industry as there appears to be no satisfactory method at the present time. Further, rates and other charges are presently being negotiated individually with no standard criteria or guide posts of a universal application. The committee recommends that all current data presently being used in connection with rates and charges be collected by the Administration and that such data be disseminated to the membership of the committee for study. Because of the urgency of this problem it is suggested that such data be furnished at an early date in order that a report may be filed on this subject with the Administration prior to the next meeting, if feasible. It appears that the basis for such rates and charges at airports should take into consideration prudent management, the intangible benefits derived; e. g., providing the community with air mail, passenger, and cargo services.

"(16) Efficiencies and Services at Airports.—It is recommended that the Administration give consideration in formulating a plan for rating the airports, facilities, services, and efficiencies and that a suitable award be given to all airports meeting standards or qualifications for such a rating. This might be expanded to cover reasonable economy of operation in accordance with industry-wide standards. This recommendation is suggested because the committee is cognizant of small-airport problems where in many instances the housekeeping of the airport and the services provided are entirely inadequate to the users and the traveling public. It is further felt that such an award would stimulate competition in providing services and efficiency.

"(17) Heliports.—All the committee members were fortunate to have witnessed the use of helicraft at Los Angeles. We were all greatly impressed with the type of service being provided to metropolitan communities through such medium; therefore, it is recommended that in all future aviation planning consideration should be given to the advantages and needs of developing heliports on roofs of buildings as well as on the ground. The average heliport is approximately 100 square feet. It is felt that if such facilities were provided on the roof tops of terminal buildings in metropolitan areas, that it would greatly reduce travel time into the center of the cities from approximately 1 hour to 5 minutes and facilitate the handling of mail. Another advantage would be gained in the establishment of heliports on the airport terminal building roof tops in the handling of passengers and mail effectively and efficiently through the removal of the helicraft from the ramp or the line where there might be some inherent danger in the handling of pedestrian traffic. The committee takes this opportunity to endorse HR–6437, a bill to amend the Civil Aeronautics Act which would authorize construction, operation, and maintenance of heliports on or near Government buildings.

"(18) Federal Taxes Collected From Aviation.—The committee recommends that a study be initiated by the Administration for the purpose of determining the amount of Federal taxes collected from the aviation industry and that such information be presented to the committee at its next meeting.

"(19) Safety of Aviation Fuel Tenders.—It appears to the committee that there is no apparent reason for the Civil Aeronautics Board to regulate safety of fuel tenders or airworthiness requirements for the same. It appears that this should be the responsibility of the petroleum industry. The industry should establish a set of specifications which would provide for all the necessary safety requirements. It is felt that these specifications should be approved by the Civil Aeronautics Board or the Administration. After much discussion it was felt that the committee at this time could not recommend any pit system for fueling purposes at airports which would be satisfactory. It appears that all current pit systems will be obsolete within 2 or 3 years; therefore, it is recommended that the Administration request the American Petroleum Institute to expedite a study of an adequate pit system in order to relieve present congestion created through the use of fuel tenders on airports. The design of such a pit system should be coupled with two factors: safety and an economical operation.

"(20) Taxation at Private Airports.—It is recommended that the Administration continue its study with regard to the private airport seeking relief from taxation and that the Administration forward its conclusions to each member of the committee.

"(21) Dissemination of Information Pertaining to Airport Management.—The committee recommends that the Civil Aeronautics Administration endeavor to disseminate more information pertaining to airport management including in particular data and suggestions as to the best airport management practices through either mail or direct contact.

"(22) Continuation of the Federal Airport Act.—The committee again considered the recommendation made at its first meeting for extension of time for completion of the Federal-aid airport program in connection with S–2875 introduced in the United States Senate on January 17, 1950. Further study by the committee emphasized the importance of extension of time for completion of the Federal-aid airport program at this time, preferably by elimination of the time fixed for termination rather than moving the termination date ahead.

"Airport planning is necessarily a long-range program involving airports important to the national plan to be built or improved at some time in the future as well as airports to be built at this time for use as far ahead as can possibly be foreseen. These airports can be soundly planned in relation to a complete national plan only so far ahead as the over-all plan is projected. Many cities with projects important to the national plan are not able to plan, finance, and build in a single project but must proceed by stages over a period of years. To fix any definite time limit is to cut off city planning and progress with construction far in advance of any fixed termination date. Congress has complete control of the building program through its annual appropriation and can curtail or stop progress of the program at any time regardless of any termination date.

"The committee approves S–2875 which proposes extension of the time limit for completion of the Federal-aid airport program for a period of 5 years, extending the termination date from June 30, 1953, to June 30, 1958. The committee believes it would be much more helpful to eliminate the termination date in the original act rather than extend the termination date to a fixed time.

"We are aware that many of the above recommendations are not directly related to airports; however, the committee feels that anything that affects aviation affects airports. The committee has also requested me to inform you that each and every one of them is prepared to serve on the working committee of the recently created Airport Use Committee and is available on any assignment you may decide to give them without compensation from the Federal Government.

"The committee is most appreciative of the assistance and information which has been forwarded to them by the director of airports, Phillips Moore, and for the manner in which he has so ably administered the Federal airport program.

"Again I would like to take this opportunity to reiterate that every effort should be made to hold a national aviation conference at an early date, in order that all segments of the industry can confer on problems of mutual interest before our next meeting. The next Airports Advisory Committee meeting will be deferred until we have heard from you with regard to arranging for a national aviation conference."

Royalty Fee Agreement Made For High Intensity Lights

Agreement for payment of a royalty fee of 26 cents a linear foot for installation of high intensity runway lights has been reached by the CAA with the Welsbach Corp. and Bartow Beacons, Inc., D. W. Rentzel, Administrator of Civil Aeronautics, has announced.

The "stop order" on Federal participation in the cost of high intensity runway lights under the Federal Airport Act, issued by the CAA on May 24, 1949, when the problem of royalty payments was raised, has been lifted, effective March 1, 1950.

The Welsbach Corp., which administers the Bartow patent for high intensity runway lights, originally requested a royalty fee of 80 cents a runway foot.

Under the agreement, high intensity runway lights are defined as those emitting a light of more than 10,000 candlepower without color correction.

APR 2 8 1950

Pilot Error Blamed in 90 Percent of Private Flying Fatal Accidents

The Civil Aeronautics Board has issued a report disclosing the results of a year-long study entitled "The Human Equation in Aircraft Accidents," which revealed that approximately 90 percent of the 850 total fatal accidents in non-air-carrier flying in 1948 were the result of pilot error.

The Board's study, compiled after an analysis of each fatal aircraft accident in United States private flying during 1948, disclosed that three main categories of pilot error accounted for 75 percent of the accidents. The Board's study found that 41 percent of the fatal accidents were caused by "operating recklessly"; 18.6 percent by "failure to maintain flying speed"; and 14.9 percent were caused by pilots who "continued VFR into instrument weather."

Stalls Are Costly.—The report stated that 60 percent of the accidents in these three groups involve stalls. "It is this high frequency of stalls in fatal accidents which indicates that the designer can do more than anyone else to reduce the fatal accident rate in personal aircraft," the report said.

"Just how much the designer can do is indicated by the fact that on this basis of the number of aircraft the Civil Aeronautics Administration lists as having active airworthiness certificates, 3 highly stall-resistant types of aircraft in 1948 averaged 1 fatal stall accident for over 800 aircraft," the report continued. "The over-all average for single engined aircraft was 1 fatal stall out of but 186 aircraft. This is more than four times the rate of the stall-resistant aircraft.

"We do not have sufficient exposure data to evaluate the stall-warning indicator from the standpoint of accident prevention. We feel, however, that a good stall-warning indicator can do much in helping pilots to keep existing aircraft out of stall accidents. Also, we believe that the stall-warning indicator is a valuable flight instrument which can help any pilot to learn the limitations of his aircraft. The Bureau of Safety Investigation is endeavoring to collect sufficient data which it is hoped will enable us to measure its degree of success in the prevention of stall accidents."

The following table sets forth the specific causes of the 850 total fatal accidents which occurred in the 12-month period covered by the Board's analysis:

Fatal Pilot Error Accidents in 1948

Error	Number of fatal accidents	Number of fatalities	Percent of fatal pilot errors
Operating recklessly	311	512	41.0
Failure to maintain flying speed	141	210	18.6
Continued VFR into instrument weather [1]	113	216	14.9
Failure to observe aircraft or objects	40	60	5.3
Misjudged distance	25	67	3.3
Improper flight training or supervision	22	40	2.9
Exceeded stress limits of aircraft	19	40	2.5
Inadequate flight preparation	18	23	2.4
Inattentive—fuel supply and valves	12	15	1.7
Became lost (VFR)	9	12	1.1
Selected unsuitable terrain or runway	7	10	.9
Failure to compensate for wind	5	5	.7
Misuse powerplant controls	5	8	.5
Improper level off	2	2	.3
Failure to retract or extend gear	2	2	.3
Other pilot causes	27	46	3.6
Total	758	1,268	100.0

[1] V. F. R. "Visual Flight Rules".

Copies of the report, which was prepared by Edward B. Heyl of the Accident Analysis Division of the Board's Bureau of Safety Investigation, may be obtained from the Civil Aeronautics Board, Publications Section, Washington 25, D. C.

Shipments of Aircraft Engines Gained 17 Percent in January

The civil aircraft engine industry's shipments for January 1950 were valued at $5,312,000—an increase of $766,000 or 17 percent over the previous month—according to a report issued jointly by the Civil Aeronautics Administration and the Bureau of the Census. Dollar value was distributed as follows: $1,803,000 for complete engines, $3,297,000 for spare parts, and $212,000 for other products.

January shipments included 267 engines compared with 168 in December and 264 a year ago.

Detailed information on civil aircraft engine shipments show:

Civil Aircraft Shipments

LIBRARY
COLLEGE OF ENGINEERING
DUKE UNIVERSITY

	January 1950	December 1949	January 1949
Number (total)	167	116	160
Number by type:			
Personal	157	106	151
Transport	10	10	9
Number by place:			
1- and 2-place	45	34	37
3- to 5-place	112	72	114
Over 5-place	10	10	9
Airframe weight (thousand pounds)	507.8	584.2	280.6
Personal	125.9	85.0	136.0
Transport	381.9	499.2	144.6
Value (thousand dollars)	$16,356	$20,022	$8,347
Complete aircraft	12,103	14,401	3,567
Parts	2,499	[1] 3,338	3,284
Other products	1,754	2,283	1,496

[1] Revised.

Michigan One of Leaders In Enforcing Safety Rules

Michigan was one of the leading States in actions taken against violators of air safety during 1949, the Civil Aeronautics Administration said recently.

A more complete report by the CAA than preliminary figures it issued in December shows 35 arrests in Michigan, with a total of $1,105.15 in fines and costs paid.

D. W. Rentzel, Administrator of Civil Aeronautics, said that "the kind of work being done in Michigan under the leadership of the State Department of Aeronautics is of great value to CAA in its efforts to promote air safety."

The CAA, he explained, does not have and "does not want a staff of Federal agents large enough to observe all United States flying, and we are glad to get all the help possible from State and local authorities."

Only a small percentage of flyers offend in safety matters, Mr. Rentzel said, but "State and local action is essential to curb their activities promptly."

Trans-Canada Gets Permit

The Civil Aeronautics Board has granted Trans-Canada Air Lines a foreign air carrier permit authorizing air transportation between Montreal and Toronto, Canada, as co-terminals, and Port of Spain, Trinidad, via Tampa-St. Petersburg, Fla.; Nassau, Bahamas; Jamaica, and Barbados. The Board's order was approved by President Truman on March 11, 1950.

Castered Gear Promises More Airport Building, Rentzel Tells Road Men

The effect of the castered landing gear on airport construction was discussed by D. W. Rentzel, Administrator of Civil Aeronautics, in a recent address before the American Road Builders' Association in Cincinnati.

"Because road builders have such keen appreciation of the great value of vehicle-minutes saved on highways, I know you will applaud the fact that CAA's development of the castered landing gear on small and medium size aircraft now permits direct-approach landings being made without the need for aircraft to go through time-consuming circling previously often required over airports, due to an adverse wind," the Administrator said. "Large airplanes can also now effect these same time savings."

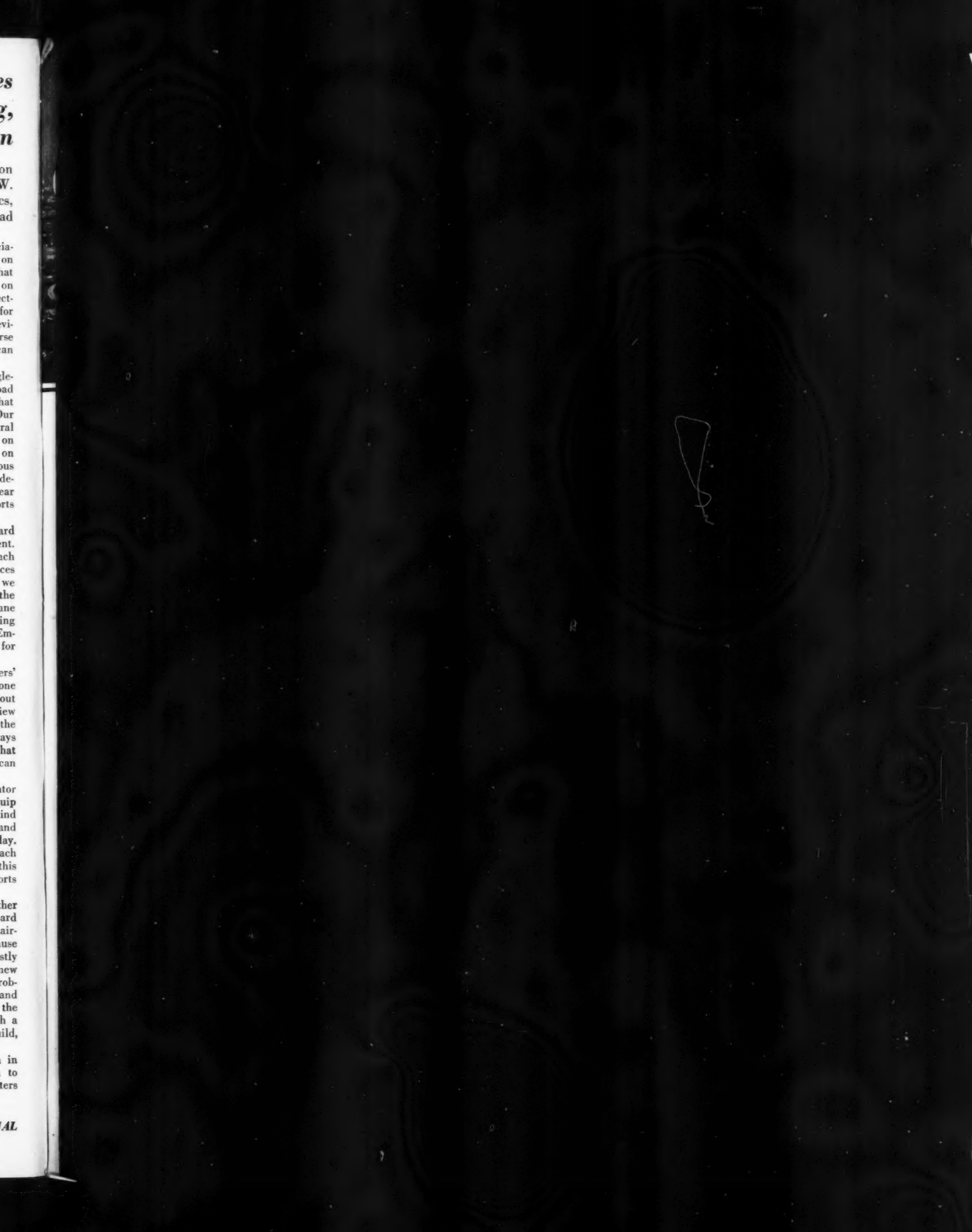
The CAA's policy with respect to building single-strip landing areas has definite importance to road builders, Mr. Rentzel said. "It is my conviction that it will mean more business for you," he added. "Our policy, as you may know, is that we will use Federal money to build not more than one strip or runway on most class 1 airports, and for additional runways on larger airports only if located to permit simultaneous use. This comes about, of course, through the development of the castered cross-wind landing gear which I mentioned, and of tricycle gear transports which can land in strong winds."

Makes Plane More Useful.—"You have heard the airport compared to the telephone instrument. The more of each there are, the more valuable each is. If, therefore, we can build many landing places for the price of one, we have made progress. If we can place many small landing places about the periphery of the city, we have brought the airplane closer to the home of its owner. This means one thing above all, the airplane is made more useful. Emphatically, it means more airports will be needed for you road builders to construct.

"It means also that we can stretch the taxpayers' dollar in building large airports. Elimination of one runway on a large terminal field will save about $3,000,000. More important, from the point of view of you who build these airports, we can multiply the capacity of a terminal airport by building runways that are parallel, or that do not intersect, so that planes can use several runways at a time and we can build airports at more locations.

"The cost angle is interesting," the Administrator continued. "It would take about $10,000,000 to equip every transport plane in today's fleet with cross-wind gear, even including planes like the DC-3, 377, and 202 which can land cross-wind as they stand today. This is equivalent to the cost of one runway on each of three terminal fields, made unnecessary by this development. As of January 1, we had 781 airports of class 4 and larger."

Single Runway Plan Described.—"Another important figure is this: The Civil Aeronautics Board has certificated 800-odd stops for the scheduled airlines. But 250-odd of these are not activated because the airports are not suitable. It is much less costly to extend runways in most cases than to build new ones, and the very efficient runway of the future probably will be a single one so long that planes can land on one end, unload and load at a terminal at the center, and take off in the same direction. Such a runway, besides being less costly to locate and build, would produce real savings in taxi time."

He cited the importance of air transportation in national defense, urging that priority be given to improving highway connections between urban centers and airports certificated for air carrier service.

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